تصميم المنشآت الخرسانية

بإستخدام

CADS ANALYSE



تصميه المنشآت الخرسانية

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مهندس طارق توانيق أحمد

دار الکتب العلمیة للــنشروالتوزیـــع ۱۸ شارع السبم ـ إمبابة ت : ۲٤٤٠٩٧٦



وقل رب زدنی علماً

الإصحاء

إلى كل عقل يبتكر ويفكر

.. وكل يد تبني وتعمر

أهدي هذا الكتاب

شكر

أتقدم بخالص الشكر لكل أستاذتي الذين علموني - إعترافا لهم بالجميل - وأشكر كل من عاونني في شركة (المهندسون المصريون للحاسبات).

وعلى ما أبدوه من تعاون مثمر معي وأيضا السادة العاملين بدار الكتب العلمية للنشر والتوزيع على مابذاوه من جهد ليظهر هذا الكتاب إلى النور بهذه المورة المشرفة .

المؤلف

مقدمة

الحمد الله الذي هدانا لهذا وماكنا لنهتدي لولا أن هدانا الله . وبعد

يم تبر هذا الكتاب الأول من نوعه الذي يتناول برنامج التحليل والتصميم الإنشائي (CADS ANALYSE)

أقدمه لجميع المشتغلين في حقل الهنسسة المدنية وخاصة منهم العاملين في مجال التصميم الإنشائي وقد راعيت أن أقدم هذا الكتاب في صورة مبسطة ومتتابعة حيث أبداً مع القاريء العزيز من الخطوة الأولي للتعامل مع الحاسبات الشخصية .

(PERSONAL COMPUTERS)

وهي مقدمة مختصرة عن نظام التشغيل (DOS) ثم مقارنة البرامج الإنشائية المختلفة والمستخدمة في التصميم وقد توخيت قدر جهدي الدقة في توضيع الفروق بينها. وباستعراض أحزاء هذا الكتاب سنجد أنه ينقسم إلى جزئين أساسيين .

الجـزء الأول : - ويحتري على الأسس والقواعد النظرية اللازمة لتشغيل البرنامج. الجزء الثاني : - على العديد من الأمثاة المحلولة والتي يصادفها المهندس في حياته العملية مما يوفر الوقت والجهد ويعطي فرصة لإظهار أفضل الحلول من الناحية الإقتصادية .

وأرجب يأى إستقسارات أو ملاحظات من السادة الزملاء .

وأرجو من الله عز وجل أن يتقبل مابذاته من جهد وهذه المساهمة للتواضعة في مكتبتنا العربية لعلوم الحاسب .

وينا لا تؤاخذنا أن نسينا أو أخطانا رينا ولا تحمل طينا أصراً كما حملته
 على الذين من قبلنا ولا تحملنا مالاطاقة لنا به وأعف عنا وأغفر لنا وإرحمنا أنت
 مولانا فإنصرنا على القوم الكافرين ه .

القاهرة سيتمير ١٩٩٢

مهندس / طارق توفيق أهمد



الباب الأول

الحاسبات والتصميم الهندسي

الغصل الأول المقدمة ونظام التشغيل

> الغصل الثاني برامج التصميم

> > ٩

للقدمة ونظام التشغيل

لدراسة الماسب الشخصي يلزم معرفة شقين أساسين وهما مكوناته المنلية (HARDWARE) والبرمجيات (SOFTWARE) _ الهنكونات الحلية

(Input Unit) المحدة الإسفال (Central Processing Unit) (Central Processing Unit) معدة المعالجة المركزية (Output Unit) معدة الإعداء - ٣

Input Unit الإنقال المدة الإنقال ١

يتم إبخال البيانات عن طريقها مثل لوح المفاتيح Keyboard ومشفل الإسطوانه . Mouse والفارة Disk Drive

٢ - وحدة المالجة الركزية :

ويرجد بها الأجزاء التالية .

(Memory) ومدة الذاكرة (1)

(Arithmatic and Logic Unit) وحدة الحساب والمنطق

(Control Unit) محمتا قاعي (ج)

(أ) وحدة الذاكرة :

وتنقسم إلى :

_ ذاكرة القراحة (Read Only Momory (ROM)

ويوجد بها برامج قابلة للتنفيذ بدون أي تعديل من المستخدم ولا يفقد مابها عند إنقطاع التيار الكهربي ،

_ ذاكرة الوصول العشوائي Random Access Memory (RAM)

وتسمى أيضابذاكرة القراءة والكتابة ويتم بها التعامل مع البيانات والبرامع

والنتائج ويفقد مابها عند فصل أو إنقطاع التيار الكهربي .

(ب) محدة الحساب والمنطق

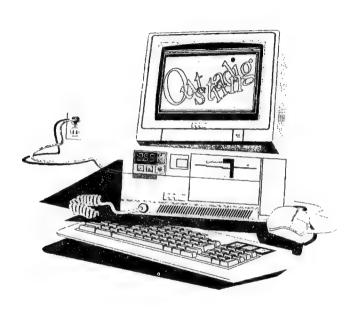
ويتم بها إجراء جميع العمليات المسابية كالجمع والطرح والضرب والقسمة وكذلك العمليات المنطقية مثل أكبر من أو أصغر من أو يساوي أو لايساوي)

(ج) وحدة التمكم:

نتحكم في إنتقال المعلومات بين وحدات وحدة المعالجة المركزية - مثلا بين الذاكرة ووحدة الحساب والمنطق - وكذلك إخراج النتائج .

Y - رحدة الإخراج Output Unit

ويتم إخراج النتائج عن طريقها مثل الشاشة Monitor والطابعة Printer والراسمة Plotter



- البرمجيات:

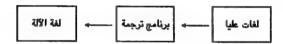
وتنقسم إلى الأجزاء التالية :

١ _ برامع نظم تشغیل

وهذه البرامج يتم تصميمها بمعرفة الشركة المنتجة الحاسبات الشخصية وأكثرها إنتشارا (MS - DOS).

٢ ـ لغات برمجة

مثل لفات البيسك والفورتران والكوبول والباسكال وتسمي باللفات العليا (High Level Language) ولا يفهمها الحاسب مباشرة وتحتاج إلى برنامج للترجمة إلى لفة الآلة .



٣ ـ برامع التطبيقات

وتتناول كافة مجالات الهندسة والمحاسبة والإداة ومعالجة الكلمات مثل Autocad, Cads, Staad, Lotus 123, Dbase, Word Star

أوامر نظام التشغيل الهامة

إستخداماته	الصيغة	الأمر
لعرض اللغات المجودة على إسطوانة الشغل A مثل السابق واكن على شاشات منتابعــــة عرض اللغات على شاشة واحدة بالعرض .	A >DIR/ P	DIR داخلي
ـ تنظيـــف الشاشـــة .	A>CLS	CLS داخلي
ـ لمعرفة الوقت المالي مع إمكانية تغييره .	A>TIME	TIME داخلي
ـ لمرقة التاريخ المالي مع إمكانية تغييره .	A>DATE	DATE
ـ انسخ ملف (أو مجموعة من الملقات) من إسطوانة المشفل A إلى إسطوانة المشفل B .	B >Copy A:File Name	COPY داخلي
لإستعراض محتویات ملف نصبي (Text file)	A > TYPE File Name	TYPE داخلي
لإلغاء ملف (أو مجموعة من المُلفات)	A >DEL File Name	DEL. داخلي
لتهيئة وتشكيل الإسطوانة جديدة مثل السابق مع نقل ملفات نظام التشفيل عليها		FORMAT خارجي

أوامر نظام التشغيل الهامة (تابع)

إستخداماته	الصيغة	الأمر
لنسخ إسطوانة كاملة بإستخدام المشغل A	A > DISKCOPY A: A:	DISKCPÒY خارجي
المقارنة بين الإسطوانة الأصلية والمنسوخة .	A > DISKCOMP A: A:	DISKCOMP
قحص الإسطوانة في المشفل A وإعداد تقرير عنها وعن الذاكرة .	A >CHKDSK	CHKDSK خارجي
لإنشاء فهرس فرعي على الفهرس العالي لإسطوانة للشغل A	A >MD Directory Name	MAKE DIRECTORY داخلي
الإنتقال من الفهرس المالي إلى فهرس قرعي آغر .	A >CD Directory Name	CHANGE DIERCTORY
لإلقاء فهرس قرعي	A >RD Directory Name	REMOVE DIRECTORY

برامج التصبيح

أصبحت تلك البرامج (Computer Aided Design) السمة المميزة للحاسبات الشخصية طراز(IBM) والأجهزة المتوافقة معه .

ومن أشهرها برنامج الرسم الهندسي Autocad المستخدم الرسم في المستوي والفراغ وإعداد المناظير وكتابة الأبعاد والتعريفات على الرسم وطباعة الرسومات على الطابعات والراسمات من أحجام A4 حتى A0 وإمكانية تعديل المساقط الأققية والرأسية والقطاعات وطباعتها مما يوفر الوقت والجهود .

ويستخدم البرنامج السابق في الرسومات المعمارية والإنشائية والميكانيكية والكهربائية ويعتبر أقوي برامج الرسم وأكثرها إنتشارا وشيوعا في العالم .

وظهر حديثا برنامج مكمل عديد الإمكانيات وهو 3D Studio للعرض المجسم في الفراغ مع إمكانية توايد الرسومات المتحركة المتخصصة بدرجة عالية من الدقة والمضوح ويحتوي على محرر رسوم في الثلاثة أبعاد ويمكن للمستخدم توايذ المجسمات بسرعة وبقة وإضافة المواد المستخدمة فيها بنفس الشكل واللون كالخشب والزجاج والأرضيات وخلافه بحيث تظهر على الشاشة كما في الطبيعة ويمكن إعداد الرسومات أولا بإستخدام Autocad وإدخالها على 3D Studio لإضافة اللمسات الأخيرة التصميم كالمواد الخام ولعرض المنشآت بطريقة مبهرة بدورانها حول محاور عديدة مع إستخدام الإضاحة والطلال والكاميرات من مواضع مختلفة .

وفي مجال التحليل والتصميم الإنشائي ظهرت برامج عديدة منها

CADS ANALYSE STAAD III

SAP 80

وتعتمد كلها على خطوات أساسية متتابعة وهي إنخال أبعاد وشكل المنشأ وفرض قطاعات لأعضائه وكذلك حالة الركائز وأخيرا الإحمال وحالات التحميل ثم الحل وظهور النتائج وهي العزوم والقوي المحورية وقوي القمس والإزاهات مع إمكانية تصميم قطاعات المنشأ.

ويوضح الجدول التالي مقارنة بين تلك البرامج .

SAP80	STAAD	CADS	وجه المقارنة
XT or AT + HARD DISK+ COPROCESSOR	XT or AT	XT or AT	الأجهزة
على الأقسل 12. كيلسوبايست	طــــى الأقـــل -٤٠ كليـــوبايــت	طــــــى الأقل 3 و ٢ كيلـــــــ بايـــــــــــــــــــــــــــــ	الذاكرة
على الأقل ه إسطوانـات سعة ٢٦٠ كيار بايت	عد ٤ إسطوانات سعة ٢٦٠ كيلوبايت	عد ۲ إسطوانات سعة ۲۲۰ كيلو بايت	الإسطوانات
والإحمال بإستخدام برامج	کتابة وتومیف المنشا والإحمال بإستضام برامج معالجة التصوص		إسلوب الجل
من خارج البرنامج ويتعديل اللف النصبي الكتوب	من شارج البرنامج وبتعديل اللف النصبي الكتوب		التعديل
في المستدي والفراغ Finite Elements Dynamics	فسي المستوي والفراغ Finite Elements	في الستوي فقط ،	تصميم المنشأت
يظهر تقرير للحل وبه نتائج المنشط	يظهـر تقريــر المــل ورـــه نتائــج المنشأ	يتم بدقة عالية مع رسم المنشأ وتتاثج المل	إظهار النتائج والرسومات
STAAD اكثر مسوية من	اکثر مسویة من CADS	أسهل البرامج الإنشائية	السهوات
لمراجب عبية الملف النصي	تعتاج إلى ذبرة السنفدم لراجــــــــــــــــــــــــــــــــــــ	البرنامج عن حدرتها كما	الأخطاء

الباب الثانى تشغيل البرنامج

الفصل الأول متطلبات التشفيل

الغصل الثانى أسطوانات البرنامج

الغصل الثالث زُجفيز البرنامج للعمل

الغِصل الأول متطلبات التشفيل

```
١ .. حاسب شخصي من طراز (IBM XT OR AT ) أو أحد الأجهزة المتوافقة معه .
```

٣- نظام التشفيل الاصدار ٢٠٠٠ وما ملبه

(PC - Dos or MS-Dos, version 2.00 or Higher)

٤ _ شاشة عرض أحانية اللون أبهلونة (Monochrom or color monitor)

ه _ أحد مهيئات الالوان والرسوم البيانية التاثية :

Color Graphic Adaptor

C. G. A.

Enhanced Graphics Adaptor

E. G. A V. G. A

Video Graphic Adaptor Hercules Graphic Card

٦ ـ مضرج طابعة على التوازي Parallel Port

. (Epson FX or IBM Graphics Printer) من طراز (اختيارية) من طراز

الفصل الثاني اسطوانات البرنامج

يتكون البرنامج من ثلاثة اسطوانات سعة ٣٦٠ ك . بايت وهي :

- * Analyse disk (1)
- * Analyse disk (2)
- * Analyse disk (3) (Examples)

وتحترى الأسطوانة الأولى على ثلاثة أنواع من الملفات وهي :

ا - ملفات قابلة التنفيذ (Executable Files) .

وكل ملف يستخدم البيانات المدخلة ويتعامل معها ويعد النتائج كمدخلات للملف الذي يليه وهكذا حتى الوصول إلى نهاية البرنامج وهي :

APC	EXE	5632	1-01-80	4:12a
CONFIG	EXE	29885	8-16-85	4:32p
BASRUN	EXE	31744	5-07-82	12:00p
APO	EXE	39806	9-18-85	1:48p
AP1	EXE	515843	9-16-85	12:20a
AP3	EXE	3664	9-17-85	11:40a
AP4	EXE	25965	8-16-85	11:32a
AP8	EXE	21885	8-15-85	5:38p
AP9	EXE	29536	8-18-85	4:51p
AP11	EXE	26736	8-16-85	11:42a
AP13	EXE	64080	9-13-85	1:11p

ويلزم لتشيغل البرنامج تصميل الملف BASRUN.EXE في الذاكرة ويستخدم الملف CONFIG. EXE لتهيئة البرنامج تبعا لنرع الجهاز المستخدم وإمكانياته.

: (Text Files) ملغات نصية - آ

وتحتوى على الكتابة التي تظهر على الشاشة أثناء تشغيل البرنامج وهي :

AH	TXT	69300	8-19-58	11:54a	
CADS	SREP TXT	220	7-28-85	6:07p	
CURI	RENT TXT	128	1-01-80	1:48a	
AS	TXT	1536	1-01-80	12:20a	
AT 10) TXT	1769	1-01-80	12:06a	
AT 1	TXT	1890	1-01-80	12:07a	
AT 12	2 TXT	2404	1-01-80	12:07a	
AT 14	TXT	1344	1-01-80	12:08a	
AT 15	5 TXT	1161	1-01-80	12:08a	
AT 16	5 TXT	3009	1-01-80	12:09a	
AT 17	7 TXT	2484	1-01-80	12:09a	
AT 18	3 TXT	1340	1-01-80	12:10a	
AT 30) TXT	6932	8-3-85	12:54a	
AT 40	TXT (558	8-3-85	12:55p	
AT 80	TXT	640	8-3-85	12:57p	
AT 90	TXT	4032	8-3-85	12:57p	
AT 13	3 TXT	5221	1-01-80	12:28a	
ATB	O TXT	980	8-30-85	12:58p	
ATD	O TXT	5438	8-30-85	12:03p	
INST	ALL TXT	240	7-31-85	5:19p	
ATO	TXT	7303	1-01-80	6:33a	
CAD	SEND TXT	362	7-25-85	5:43p	
CAD	SLOAD TXT	40	7-25-85	5:54p	
CAD	SZERO TXT	128	1-01-80	1:50a	
ANA	MES TXT	128	1-01-80	12:09a	
					_

ويستخدم الأمر TYPE لعرش محتويات اللغات على الشاشة قمثلا :

A > TYPE AH.TXT

تظهر البيانات الآتية على الشاشة وهي الف الساعدة من داخل البرنامج AH.TXT

Help Instructions Indes INTRODUCTION - How to use the Help
Instruction Page 1 - How to enter date from the keyboard
Page 2 - How to use the SPREADSHEET system
Page 3 -5 -How to use the SCIENTIFIC CALCULATOR
Page 6-7 -How the ANALYSE program works ::
Page 8-9 -Program assumptions and limitations Page 10
DATA ENTRY - Entering Joint Coordinates Pages 11-12
- Entering Member Location and Fixity Page 13
Entering Member Properties Pages 14-15 - Entering
Sup Ports
Page 17 - Entering Member Loads
Page 17 - Entering Member Loads - Entering Load Combinations
Page 22-23 - Interpretation of results Page 24
26GRAPHICS - Frame Geometry, Deflections, Moments & Force
es Pages 27- 30 Disk UTILTTIES - Backing uip / Formatting new
disks Page 31 - Copying / Deleting / Renaming Jobs
Page 32 INTRODUCT 10N - How to use the help Instruc-
· · · · · · · · · · · · · · · · · · ·
tions. page 1 Whenever you press the help key (F1), the current
screen display is sayed and page of the Help Instructions, usually relev-
enat to the section of the programthat you are presently running, will
appear. At the bottom of the screen are becommands that all ow you to
access other Help Pages as easily as turning thepages of book. These
commands are F1- Help, Takes you directly to this Help pagewher
instructions for using these Help pages are found. F3 - go to :, al-
lows you to jump airectly to any other help page by typing the num-

ber of the page then pressing the ENTER key, F4 - Back, allows you to turn back and examine the previous help page. F5- Indes, allows you to jump directly to the help Instructions Indes Page. F6 - Forward, allows you to turn forward to the next help page. ESC - Escape, takes you out of the help Instructions, restores the original screen display and allows you to continus the program from the point where you first asked for help. INTRODUCTION - Entering data from the kypboard.

Page 2 There are three ways of entering data into the program 1 Highlig hted character on screen (Menus, etc.). Only one key press is required. This is the key on the keyboard corresponding to the highlighted character of the opion required on the srecen, 2 Flashing Cursor on screen. More than one key press is expected, so all entries must be terminated by presssing the ENTER key. A default value is usually prompted and may be accepted by just pressing the ENTER key. Pressing any other key will replace the prompted value with the new date just typed. The BACKSPACE key may be used to edit typing mistakes before pressing the ENTER key. 3 List entries. When multiple entries are expected (eg TRANSFER data to a list of other items) the program allows you to enter a group of numbers in one go. CONSECUTIVE NUMBERS eg: 1,2,3,4,5, & 6 are entered by typing 1-6 and ENTER. NON-CONSECUTIVE NUMBERS eg: 1, 3 & 7 are entered by typing 1,3,7 and ENTER. You may not mix the two formats in the same entry, howvere, the program always prompts ANY MORE? Y/N so the two formats may be used alternately. INTRO DUCTION - How to use the spreadsheet page 3 ember 10 cation and fixity

em J1. Jnt X1 Coord Y1 Coord Y1 Coord J2. Jnt x2 Coord Y2 Slope O.no . can (m) (m) no. can (m) (m) Coord Length (deg) 1 2 F 0.000 2,600 3 F 1.750 3.240 20.088 2 F 1.750 3.240 F 3.500 3.880 1.863 20.088 3 0 < Input mode.

۳ - علغات حزم اللها عرب Batch Files
وتحترى على مجموع أوامر لنظام التشغيل وتحميل ملفات البرامج القابلة
التنفيذ Executable وهي:

INSTALL	BAT	770	8-02-85	3: 46P
CADSINIT	BAT	256	2-14-89	7:42P
CADSFORM	BAT	431	7-31-85	1:27P
SETUP	BAT	2511	8-05-85	5:46P
CADS	BAT	37	7-25-85	6:04P
AUTOEXEC	BAT	207	7-28-85	1:01P
CADSCOPY	BAT	156	7-31-85	1:00P
CADSEND	BAT	31	2-14-89	8:56P
CONVERT	BAT	1440	7-25-85	6:05P
ANALYSE	BAT	50	2-14-89	8:57P
CADSHND	BAT	38	8-02-85	11:41a
GO	BAT	9	3-04-89	9:02P
CADSUTIL	BAT	21	2-14-89	8:56P
CADSRUN	BAT	50	7-31-85	12:26
CADSUTIL	BAT	31	2-14-89	8:56p

ونستغيم الأمر TYPE لعرض محتويات الملفات على الشاشة فمثلا

A> TYPE ANALYSE.BAT	
---------------------	--

تظهر الاوامر الآتية لتشغيل البرنامج:

echo off cls type cadsload.txt cadsinit a ng تحتوى الاسطوانة الثانية علي ملفات البرنامج اللازمة لانخال البيانات وخطوات الحل وطباعة النتائج والرسومات وخلافة ولا يمكن تشفيل البرنامج بدون هذه الاسطوانة ويلزم وجودها في مشغل الاسطوانات اثناء استخدام البرنامج من البداية إلى النهاية .

تحتوى الاسطوانة الثالثة على أمثِلة مطوله باستخدام لِلبرينامج وهي :

- 1- Cadsex 1.
- 2- Cadsex 2.
- 3- Cadsex 3.
- 4- Cadsex 4.
- 5- Cadsex 5.
- 6- Cadsex 6.

الفصل الثالث يُجِمِّيز البرنامج للعمل

أ- فم حالة الإسطوانة العلية (Hard disk) :

ا. نجعل الماسب في وضع التشغيل (Power on) .

٧- ننتظر حتى يتم التحميل وبانخال التاريخ والوقت سيظهر المعث

C:\>

لا تستقدم أمر إنشاء الفهارس الفرعية MD وليكن اسم الفهرس الفرعي CADS وتكتب الأمر CP> MD CADS

ثم نضفط Enter للصفال .

4. ننتقل من الفهرس الرئيسي الجذري Root directory إلى الفهرس القرعي Cads ولذك نكتب الأمر

C:>CD CADS

ثم نضغط Enter للإعمال فيظهر انا المدد بالمبورة الأتيه

C:\CADS>

ه- نستخدم الامر COPY لنسخ إسطوانات البرنامج التي تحتوي على الملفات الآتية

CADSUTIL BAT	CURRENT. TXT	AH. TXT	CADSRUN. BAT	CADSREP. TXT
AP3. EXE	AP4. EXE	AS. TXT	APO. EXE	AP 1. EXE
AP 13. FXE	AT10. TXT	APS, EXE	AP9. EXE	AP 11. EXE
AT 15. TXT	AT16.TXT	ATIL TXT	AT 12. TXT	AT 14. TXT
AT 40. TXT	AT 80.TXT	AT 17. TXT	AT 18. TXT	AT 30. TXT
ATDO.TXT	DISK . ID	AT 90, TXT	AT 13. TXT	CONFIG. SYS
ATOO, TXT	CADSINIT. BAT	INSTALL BAT	INSTALL TXT	CADSEND.TXT
CADSEND, BAT	CADS. BAT	CADSPORM, BAT	CADSCOPY. BAT	CADSLOAS, TXT
ANALYSE BAT	CADSZERO. TXT	CONFIG. EXE	BASRUN EKE	CONVERT. BAT
KEYBUK, COM	CADSHND, BAT	DISLCOOPT. COM	FORMAT.COM	MODE, COM
ANAMES, TXT	GO. BAT	CADSEND BAK	ANALYSE BAK	CADSUTTL . BAK
	(A)			

وأذلك نكتب الأمر

C:\CADS > COPY A: * . *

ثم نضغط Enter للإسخال .

رمعناةإنسخ كل الملقات من الأسطوانة المجودة في المشغل (A)

آ -- نستخدم أمر إنشاء الفهارس الفرعية مرة أخرى وسيكون أسم الفهرس الفرعى A
 وهو لحفظ المسائل التي سيتم حلها بإستخدام البرنامج ومكانة داخل الفهرس
 الفرعى CADS واذاك نكتب الامر

C:\CADS > MD A

ثم نضغط Enter للإعمال .

والإنتقال للفهرس الفرعي A نستخدم الأمر cd بالصورة الآتية

C:\CADS >CD A

C:\CADS\A>

وسنجد الفهرس A خالى من أى ملفّات ومستعد انتخزين المسائل المحلولة باستخدام البرنامج.

٧. المودة القهرس الجثري .Root dir نستخدم الأمر

C:\CAD\$\A >CD\

فنظهر لثا المث

C:\>

تماما هِثُل قبل نسخ ملفات البرنامج .

ب_فس حالة الأسطوانتين المرنتين B, A الأولس سعة ٣٦٠ ك ب و الثانية سعة ٧٢٠ ك ب :

تكرر نفس الخطوات السابقة مع تغير المحث <\: C إلى <!B دائما وستكون الأوامر كالآتى :

B:\>MD CADS

B:VCD CADS

B:\CADS>

B:\CADS>COPY A: * · *

B:\CADS>MD A

B:\CADS > CD A

B:\CADS\A>

B:CADS\A>CD\

B:\>

مع مراعاة أن يكون مشغل الاسطوانات 3,0° سعة ٧٢٠ ك بايت هو المث ٥٤٠

جـــ فى حالة الأصطوانة الحرنة معة ٣٦٠ كايت والذاكرة العشوائية ٣٤٠ كا المداكرة العشوائية ٣٤٠ كا المداكرة العشوائية ٣٤٠

يمكن المستخدم تشغيل البرنامج واظهار جميع النتائج باتباع المطوات الآتية بدقة:

۱ـ إنشاء الملف Config.Sys باستخدام الأمر

A>COPY CON CONFIG.SYS

ونضغط Enter للإدخال فيظهر لنا المدد على هيئة __

نكتب أمرإنشاء قرص تخيلي في الذاكرة العشوائية (Virtual disk) وهو DEVICE = VDISK. SYS 384 512 256 C:1

ثم نسجل الملف Config.Sys بالضغط على F6 أو 2 ^ مع مراعاة أن يكون التسجيل على اسطوانة نشام التشغيل التي يتم بها تحميل الجهاز وايضا رجيل الملف Vdisk.Sys عليها وهو أحد ملفات نظام التشغيل (DOS) والتأكد من ذلك نجوا الحاسب في وضع عدم التشفيل (Power on) .

٣- نستشدم قرض التشفيل المدل وعليه Config.Sys الجديدة ونتنظهر هتي بدّم التحميل وبالخال التاريخ والوقت سيظهر المحث

A:\>

نفير المسار إلى القرص التميلي (Virtual disk) باستخدام الأمر

A:\>C:

ثم نضغط Enter للإسقال فيظهر لنا المحث

C:\>

ويمكن التعامل معه كانه اسطوانه صلبه صفيرة الحجم (سعة ٣٨٤ كيلو بايت) ونكرر نفس الخطوات السابقة في حالة الاسطوانة الصلبة مع مراعاة استخدام فللفات الأساسية لتشفيل الدنامية وهـ:

O. EXE	AP1. EXE	AP3. EXE	AP4. EXE
9. EXE	API I. EXE	AP13, EXE	AS, TXT
11. TXT 17. TXT 17. TXT	AT12 TXT AT18. TXT AT13. TXT	ATI4. TXT AT30. TXT ATBO. TXT	AT15. TXT AT40. TXT ATDO. TXT CADS. BAT
	11. TXT 17. TXT	11. TXT AT12. TXT 17. TXT AT18. TXT 17. TXT AT13. TXT	11. TXT AT12. TXT AT14. TXT 17. TXT AT18. TXT AT30. TXT 17. TXT AT13. TXT ATBO. TXT

ومن مزايا هذه الطريقة :

- ا- تنفيذ خطوات البرنامج بسرعة فائقة لان التعامل مع البيانات وطفات البرنامج يكون دائماً في مكان واحد هو الذاكرة العشوائية (RAM) وسيلاحظ أن الفطوات نتم بسرعة أكبر من سرعة الاسطوانة الصلية (Hard disk) .
- ٢- توفير ثمن الاسطوانة الصلبة أو المشغل الاضافى (B) سعة ٧٢٠ ك ب (على الأقل).

ولكن من عيوب هذه الطريقة :

ققد الملقات الموجودة في القرض التخيلى (Virtual disk) عند انقطاع التيار الكهريى أو الفسفط خطأ على زر Reset المسئول عن اعادة تشغيل الجهاز لاتنا كما نعام تحمل البرنامج وتخزن ملفات البيانات والعل مؤتنا في القرص التخيلي الموجوده في الذاكرة العشوائية (RAM) التي يفقد ما بها من معلومات عند انقطاع التيارالكهربائي . لذلك ننصح المستخدم بتسجيل المسائل المحلولة أولا بقيل باستخدام الأمر Copy بالمسورة :

C:\'CADS\A'>COPY * · * A:

A	لإصفال . مع مراعاة أن تكون الاسطوانة المجوة في المشغل	Enter	م نضغط	ثم
			. قد ،	شا

: (Configuration) لعمل البرنامج للعمل

بعد الأنتهاء من نسخ ملفات البرنامج على الاسطوانة الصلبة أو المرنة أو القرص التخيليي يلزم تهيئة البرنامج والمقصود بها :

١- تعريف المكونات الصلبة (Hard ware) للبرنامج وهي :

أ- نوع مشغلات الأقراص المرنة أو الصلبة .

ب نوع الشاشة المستخدمة .

جدنوع الطابعة المستخدمة .

بالإضافة إلى وسائل مساعدة أثناء تشفيل البرنامج كاصدار أشارات صوتيه تحذيرية عند الفطأ أو عند الفال البيانات .

ويستخدم الملف CONFIG.EXE لتهيئة البرنامج ولابد من وجودة مع ملفات البرنامج في الإسطوانة الصلبة أو المرنة أو القرص التخيلين نكتب الأمر:

	فتظهر لنا الشاشة الآتية :	
C:\>CONFIG	اق	
B:\> CONFIG		

USER	: TTTLE ADDRESS ADDRESS	
	ADDRESS/PHONE	

SYSTEM : I.B.M XT/AT with 10/20 Mb fixed disk and 1 flopp disk drive

program...... DRIVE a

Data disk DRIVE C

Floopy diskDRIVE A

SCREEN: Colour display/Monochrome display emulating colour

Graphics Supported

Screen Aspect Ratio = .4167.

SOUND: Sound on ERRORS only

PRINTER: IBM/Epson dot-matrix compatible printer

Normal print mode (10 cpi)

Graphics printout supported printer Aspect Ratio = .31

IS THIS CONFIGURATION CORRECT? Y/N (Press Y or N)

ويوجد في السطر الأخير سؤال هل المكانات الصلبة للجهازالستخدم وامكانية المدار الصوت منه صحيحة أم تحتاج لتغير .

ولنفترض أنها غير محيحة فنضغط N فتظهر لنا الشاشة التالية :

SELECT THE OPTION YOU WITH TO ALTER:

1-User Enter correct your name and address:- this is used as part

of the title on printout

2- System specify the type of disk drives on your machine, and nom inate those you wish the program to Use

3- Screen Specify the type of monitor and graphics card which you are using in your maching

4- Sound Select the sound prompts that the program will give you when it requires input and when it detects an error by the

5- Printer Specify the type of printer you are using with the program

6-AII Review all the above aptions sequentially

ESC-ESCAPE Return to display of current confiquration Press 1 , 2 , 3 , 4 , 5 , 6 or ESC

والسطر الأخير به الأرقام من [١]إلى [٦] ثم زر الهروب ESC للعودة إلى الشاشة السابقة

ممثلا عند اختيار الرقم [١] فهو لتغير بيانات المستخدم البرنامج .

أن أختيار الرقم [٧] فهن لتعنيل مشغلات الأقراص المستخدمة والمناسية لجهاز المستخدم . فعندما نضغط [٧] تظهر لنا الشاشة الآتية :

Select system type

- 1- I.B.M PC.AT with twin double-sided disk drives .
- 2- I.B.M. XT/AT with 10/20 MB fixed disk and 1 disk drive press 1 or 2.

نفتار أى من الأختيارين فمثلا في حالة استخدام مشغلى اسطوانتين مرنتين احدهما ٣٦٠ ك ب والأخرى ٧٢٠ ك ب نختار رقم [١] .

نَصْغَطُ [١] فَتَظْهِرَ لِنَا الشَّاشَةِ الْآتِيةِ :

I.B.M. PC/AT with twin double-sided disk drives FROGRAM drive letter = A

DATA drive letter = B

Correct Y/N (Press Y or N)

وتم تعريف مشغل قرص حماية البرنامج (Security disk) باته المشغل A ثم تضغط . Enter

وتعريف المشفل B بأنه يحتوى علي ملفات البرنامج اللازمة للتشغيل وكذلك البيانات وملفات الحل ثم نضغط Enter ثم Y لتسجيل البيانات السابقة . أمنا فني حنالة استنخدام اسطوانة مرنة واحدة وسعة ٣٦٠ ك ب واسطوانة منياب (Hard disk) أو استطوانية واحدة سنعة ٣٦٠ ك ب والقرص التخيلي (Virtual disk) نختار رقم [٢] ونبغل التعريفات الأتية :

I.B.M. XT/AT with 10/20 Mb fixed disk and one floppy drive

PROGRAM drive letter = a
DATA drive letter = C
FLOPPY drive letter = A
Correct Y/N (Press Y or N)

نضغط Y لتسجيل البيانات السابقة بعد الضغط على Y فى أى من العالتين تظهر لنا الشاشة الرئيسية مرة أخري ويلاحظ ظهور تعديلات فى اسماء مشغلات الأقراص المستخدمة لتشغيل البرنامج .

وفي حالة تعديل نوع الشاشة المستخدمة نضغط N ثم [3] 3-screen فتظهر لنا الشاشة الآتية:

Monitor Selection

Do you have a COLOUR monitor Y/N (Press Y or N)

وفي حالة استخدام شاشة احادية اللون نضغط N أما إذا كانت ملونة نضغط Y .

فنفرض أنها احادية بالضغط على N تظهر لنا الشاشة التالية :

MONOCHROME SCREEN

Select type of adaptor:

- 1- IBM Monochrome Display adaptor (no graphics supported)
- Hercules graphics card/compatible adaptor (720 x 348 graphics resolution)
- 3- Colour display emulation adaptor (640 x 200 graphics resolution)
- 4- Multigraph Display adaptor configured to Monochrome Graphics 1 (720 x 348 graphics resolution)

Press 1, 2, 3 or 4

يضتار المستخدم نوع الشاشة المناسبة له وذلك بالضغط على[١] أو [٢] أو [٣] أو [٤] . [٤] ويجيب عن نوع الأختيارات المتوافقة مع الشاشة وتظهر له الشاشة التالية :

وبها نسبة ظهور الرسومات على الشاشة والطابعة

GRAPHICS ASPECT RATIO

The aspect ratio is the ratio of y units to x needed to provide equal length in both directions. It should be adjusted to suit your monitor and your (graphics) printer (if applicable).

Typical approximate values are:

0.6667 (Monochrome 720 x 384 pixel graphics display)

0.62 (I.B.M / Epson compatible dot matrix printer)

Screen Aspect Ratio: .6667 Printer Aspect Ratio: .62<

نضغط Enter فتظهر لنا الشاشة الرئيسية .

في حالة استخدام شاشة ملونة نضغط Y فتظهر لنا الشاشة التالية :

COLOUR MONITOR SELECTION 0.BLACK
Enter reference no.s from 1. BLUE

table shown right. 2. GREEN

3. CYAN 4.RED 5.MAGENTA

6.BROWN
7. WHITE
8.GREY

9.LIGHT BLUE

10. LIGHT GREEN

11.LIGHT CYAN

12. LIGHT RED

13. LIGHT MAGENTA

14.YELLOW

15. HIGH INTENSITY WHITE

NORMAL background colour (0 to 7) - 5

NORMAL foreground colour (0 to 15) - 7

REVERSE background colour (0 to 7) - 7

REVERSE for eground colour (0 to 15) - 5

Surrounding border colour (0 to 7) - 5

ويتم اختيار الهان الطفية والكتابة والبراويز تبعا لرغبة المستخدم نضغط Enter فتظهر ثنا الشاشة التالية:

This is an example screen

0 Option No. 0

1 Option No. 1

2 Option No.2

3 Option No. 3

This is the prompt line

Graphics supported

Colour Display or Monochrome display emulating colour

Are these colous / options acceptable Y.N (press Y or N)

وبالحظ أن الألوان المُمْتارة ، تظهر على الشاشة كمينة واكى يقبلها أو يعدل فيها المستخدم نضغط Y للموافقة فتظهر لنا الشاشة التالية :

GRAPHICS ASPECT RATIO

The aspect ratio is the ratio of Y units to X needed to provide equal length inboth directions. It should be adjusted to suit your monitor and your (graphics) Printer (if applicable).

Typical approximate values are:

0.41667 (Colour monitor/colour compatible card)

0.3 (I.B.M / Epson compatible dot matrix printer)

Screen Aspect Ratio: .41667 Printer Aspect Ratio: .31<

4- تضغط Enter مرتين للعودة للشاشة الرئيسية نضغط N ثم 4 لتعديل المنوت sound متظهر لنا الشاشة التالية وبها اختيارات المنوت عند النخال البيانات أن الأخطاء أن كلاهما معا أن الفاء المنوت .

Select Sound Options

- 1- Sound on input and errors
- 2- Sound on errors only
- 3- No Sound

Press 1, 2 or 3

بالضغط على [١] أو [٧] تظهر لنا الشاشة التالية وبها نغمة الصوت المطلوب

ERROR sounds:

- Press 1 to hear BOO-BOO sound
- Press 2 to hear FANFARE sound
- Press 3 to hear WARBLER sound *
- Press 4 to hear RED ALERT sound
- Press 5 to make selection from above sounds

نضغط Enter للعودة الشاشة الرئيسية

نضغط N ثم 5 لتعبيل نوع الطابعة 5-Printer فتظهر لنا الشاشة التالية :

Select printer type:

- 1- IBM / Epson compatible dot-matrix printer
- 2- C.Itoh / ACT writer 10, 12 or 20 dot-matrix printer
- 3- Any other standard ASCII printer

Press 1 . 2 or 3

نختار نوع الطابعة المناسبة ثم نضغط Enter العودة الشاشة الرئسية فيظهر سؤال space في إسفل الشاشة التسجيل التعديلات ولذلك نضغط Y ثم مسطرة المسافات Bar فتحفظ في الملف Disk . ID ويذلك تم تهيئة البرنامج تبعاً لنوع الجهاز المستخدم وإمكانياتة والعودة لنظام التشغيل نضغط (N)

احداثيات نقاط الهنشأ Joint Positions

اعضاء الهنشأ وحالة الوصلات

Member location and Fixity

الخواص الأنشائية للقطاعات والأعضاء Properties

الركائز Supports

المال Loads

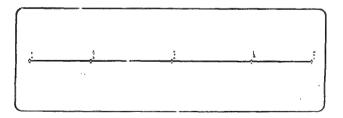
احداثيات نقاط الهنشأ Joint Positions

إن تحديدا عداثيات نقاط المنشأ هي الخطوة الأولى والأساسية لافخال بيانات محيحة البرنامج رومكن استغدام الاحداثيات الكارتيزية والنسبية لذلك.

الاحداثيات الكارتيزية :

- * نفترض أن أحد نقاط المنشأ في نقطة الاصل (صفر ، صفر) والمحرر السيئي -X) (منفر ، صفر) والمحرر السيئي -X) (axis) موجب في الاتجاه اليمين والمحرر الصادي (Y- axis) موجب في الاتجاه لاعلى،
- * ترقم نقاط المنشا بحيث يكون الفرق بينهما اقل ما يمكن (٢ ، ٢ ، ٢ ، ٤ . . . ومكذا) .
- * يحسب الاحداثي السيني والصادي لكل نقطة في المدى من ٩٩٩٩ متر حتى : +٩٩٩٩ متر ،

مثال كما بالرسم كمرة مستمرة مرتكزة على خمس مساند (Supports) ومطلوب احداثيات نقاط الكمرة.

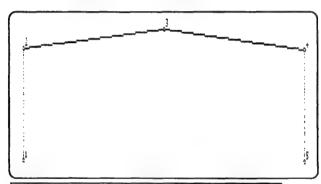


Joint Coordinates

Joint	X(m)	Y(m)
1	0	0
2 .	3 .,	0
3	7	0
4	11	0
5	14	0

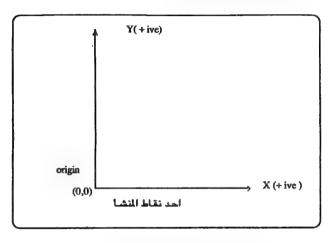
ť

مثال كما بالرسم اطار هيكلي (Frame) بمطلب احداثيات نقاط الاطار .



Joint	X(m)	Y(m)
1	0	0
2	0	6
3	10	7
4	20	6
5	20	0

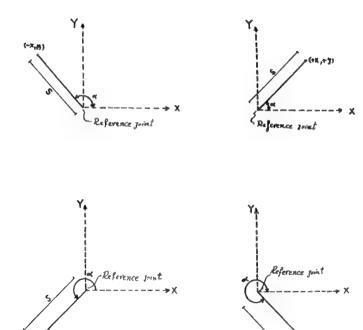
مالحظة : يمكن أغتيار المحور السيني والصادي عند أي نقطة من نقاط المنشأ مع مراعاة قاعدة الاشارات الموضحة بالرسم .



: (Relative Coordinates) الاحداثيات النسبية

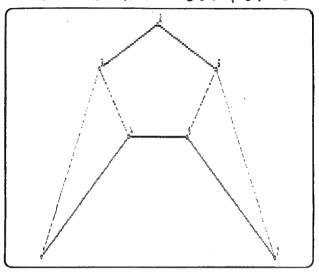
- * يفترض ان احد نقاط المنشأ المعلومة الاحداثيات (السينى والصادى) هي نقطة الاساس (Reference Joint) .
 - تنسب إليها نقطة أو النقاط التالية بمعلومية أي من الأتي:
 - ا ـ المسافة الأفقية والرأسية X & Y offsets
 - X & Angle إلى الانقية وزاوية الميل
 - ۲ـ المسافة الرأسية وزاوية الميل Angle .
 - ألسافة المائلة وزاوية المل Slope length & Angle كر المسافة المائلة وزاوية المل

والأنجامات الموجبة للمحاور وزاوية الميل موضحة بالرسومات التالية:



(-x,-3)

مثال كما بالرسم أطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار :



Joint	Reference Joint	Relative method	X(m)	Y (m)
1 2 3 4 5 6 7	- 1 2 3 3 5	X= 10 m, Y=15 X=-5, A= 210 Slope=5, A=300 X=10, Y=0 Slope=5, A=240 X=20, Y=0	0 10 5 7.5 15 12.5 20	0 15 12.113 7.783 12.13 7.783 0

الاحداثيات المتكررة Joints pattern repeat

يمكن استخدام هذه الخاصية في حالة المنشاءات ذات الابعاد المتكررة في اتجاه المحور الافقى أو الرأسي أو في أي اتجاه مائل ولاستخدامها نتبع الخطوات الآتية:

- \ أختيار النقطة أو النقاط التي يمكن التكرار على اساسها (Pattern repeat) .
- ٢- انخال الاحداثيات الانفية والراسية النقطة أن النقاط السابقة (Coordinates).
 - ". النقال أساس المتوالية العدبية اللازم لترقيم النقاط (Joint increment).
 - ا دخال عند مرات التكرار (Number of repeats) .
 - م انخال اتجاه التكرار وقيمته (Value & direction of repeat) .
- مثال كما بالرسم اطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار.



١- ادخال احداثيات النقطتين ١ ، ٢ وهما علي الترتيب (صفر ، صفر) ، (٠ ، ٥) م .
 ٢- يمكن حساب قيم الاحداثيات الافقية والراسية لنقاط النشأ بتكرار النقطتين ١ ، ٢ كما

۱- يمكن حساب فيم الاحداثيات الافها والراسية للعاط المنتنا بتحرار المعطين ١٠٠ هم. بالرسم . ٣. اساس المتواليه العددية هو ٢ أي ترقيم آخر نقطة من نقاط التكرار .

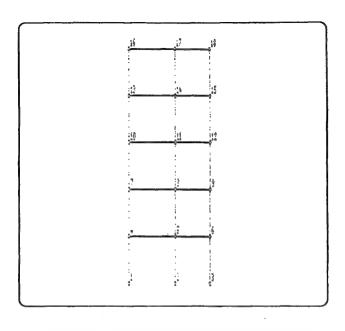
ك عدد مرات التكرار ثلاثة مرأت .

م قيمة التكرار = ١٠ م وفي اتجاه المحور الاففي (س = ١٠ ، ص = صفر) .

وبعد ادخال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميع نقاط المنشأ بمعلومية نقطتي الاساس ١ ، ٢ وهي :

Joint	X(m)	Y(m)
1	0	0
2	0	5
3	10	0
4	10	5
5	20	Ö
6	20	5
7	30	0
8	30	5

مثال كما بالرسم اطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار.



١- انخال احداثيات النقاط ١، ٢، ٣ وهلي على التوالي (٠ ، ٠) ، (٥ ، ٠) ، (٧ ، ٠) .

٧. يمكن حساب قيم الاحداثيات الانقية والراسية لنقاط المنشأ بتكرار النقاط ١، ٧،

٢ في الاتجاه الراسى كما بالرسم .

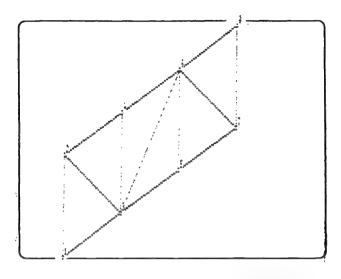
•16	•17	•18	
•13	4	•15	
010	ol 1	a12	
•7	08	₀ 9	
04	o 5	o 6	
01	•2	•3	

". اساس لتوالية العدبية هو " أي ترقيم آخر نقطة من نقاط التكرار.

ك عدد مرات التكرار خمس مرات ،

مـ قيمة التكرار Υ م وفى اتجاء المحور الراسى ($m = \cot$ ، $\Delta m = \Upsilon$ م) وبعد المقال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميم نقاط المنشأ بمعلومية نقاط الاساس V ، V . V .

مثال كما بالرسم جمالون (Truss) ومطلوب احداثيات نقاط الجمالون



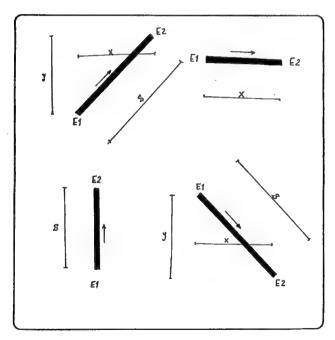
٣- اساس المتوالية العددية هو ٢ أي ترقيم آخر نقطة من نقاط التكرار.

ك عدد مرات التكرار ثلاثة مرات .

م. قيمة التكرار (m = 7a، أ $= 7^*$) أو (m = 3 م، أ $= 7^*$). ويعد ادخال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميع نقاط المنشأ بمعلومية احداثيات نقطتى الاساس 1، 1 ويمكن استخدام الطول المائل المتكرر المتساوى (Slope) وزاوية الميل في حساب احداثيات نقاط المنشأ.

اعضاء الهنشا وحالة الوصلات Member Location and Fixity ا- اعضاء الهنشا Members :

بعد الانتهاء من حساب ترقيم وإحداثيات نقاط المنشأ يجب ادخال الاعضاء المكونة له وكل عضو يسمى (Aloints) ويصل بين نقطتين فقط من نقاط المنشأ (2-Joints) وإحدة عند النهاية الثانية (E2) مع مراعاة ان تكون النهايتين طبقا للرسم ويدون أي تعديل من مستخدم البرنامج

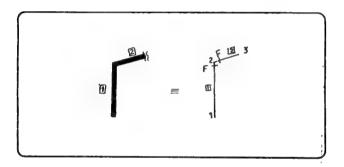


ولابد من ادخال اعضاء المنشأ بنفس ترتيب النهايات الموضحة بالرسم السابق.

: Fixity حالة الوصلات - ٦

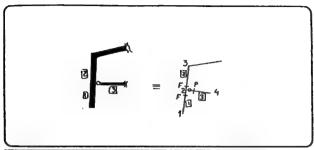
عند انخال أى عضو (Member) بالمنشأ تعرف النهايتان بالترقيم وحالة النهاية هل هي صلبة (Fixed) ويرمز لها بالعرف (F) فمثلا عند وجود :

* وصلة (Fixed) في اطار هيكلي Frame يعرف العضوان ١ ، ٢ كالاتي :



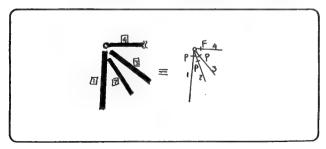
Member	E1	Jt cond.	E2	Jt cond
1	1	F	2	F
2	2	F	3	F

* وصلة صلبة (Fixed) في الحار هيكلي (Frame) وبها عضو (Hinged) تعرف الاعضاء ١ ، ٢ ، ٣ كالاتي :



Member	E1	Jt cond.	E2	Jt cond
1	1	F	2	F
2	2	F	3	F
3	2	P	4	P
		1		

وملة مفصلة (Pinned) في جمالين (Truss) تعرف الاعضاء (، ۲ ، ۲ ، ٤ كالاتي
 كلها مفصلة (P) ما عدا أي عضو مفهم لا بد أن يكون F وهذا شرط اساسي لاتزان
 الوصلة والتأكد من صحة ادخال الوصلة فإن مجموع العزيم عندها = صفر .



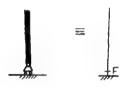
٠.٠ مجموع العزوم = ع ٢ + ع ٧ + ع ٢ + ع ع = منفر

۰۰۰ع ۽ = منفر

· * · الوصلة تحقق الشرط انها مفصلة (Hinged - Pinned)

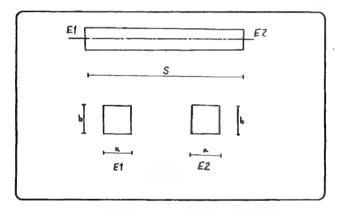
. وصلة مع الركائز (Supports) :

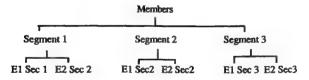
في هذه الحالة لا بد أن نطبق قاعدة البرنامج وهي وجود F واحدة على الاقل عند كل وصلة وهنا وصلة المشومم الركيزة لابد أن تكون (F) وسنوضح كيفية تعريف الركيزة على أنها (Supports) فيما بعد بفصل الركائز (Supports)

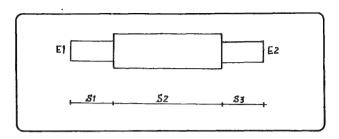


النهاص الانشائية للقطاعات والاعضاء Properties

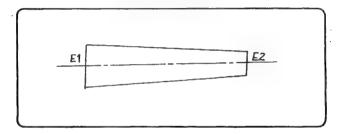
ويجب الآن ابخال خصائص القطاعات والاعضاء ويتعامل البرنامج مع الاعضاء ويجب الآن ابخال خصائص القطاعات والاعضاء المنتظمة بغير المنتظمة المقطع (كما بالرسم) غالنهاية الاولي توجد في اقصى اليسار (E1) والنهاية الثانية (E2) في اقصى اليمين للعضو (Member) ويمكن تقسيمه إلى اجزاء Segments ولا يشترط أن يكون لها نفس الطول وتبدا بقطاع (Section) وتنتهى بقطاع (Section) .



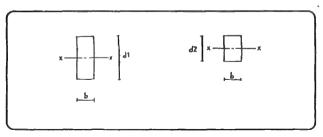




مثال عمود لاطار هيكلي (Frame) غير منتظم المقطع كما بالرسم :



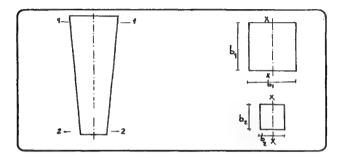
ويحسب عزم القصور الذاتي للقطاع الاول Sec 1 والقطاع الثاني Sec 2 كالاتي :



$$I1 = \frac{b d^3 l}{12}$$
, $I2 = \frac{b d^3 2}{12}$

محور × - × تنور حوله عزوم الانحناء (Bending Moment):

مثال : عمود لاطار هيكل (Frame) غير منتظم المقطع كما بالرسم :



ويحسب عزم القصور الذاتي للقطاع الاول Sec 1 والقطاع الثاني Sec 2 كالاتي :

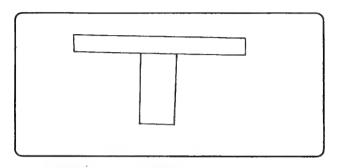
$$I1 = \frac{b^4 1}{12}$$
 , $I2 = \frac{b^4 2}{12}$

ويذلك أمكن تعريف العنض الغير منتظم المقطع من نهايته الاولى إلى الثانية (Non Prismatic) .

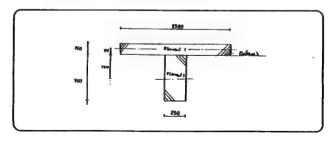
وفى حالة انتظام المقطع من النهاية الاولى إلى الثانية يعرف العضو على انه منتظم المقطع Prismatic .

وبالحظ في بعض الاعضاء الانشائية يكون القطاع علي هيئة T-sec, I-sec ويمكن البرنامج توصيف ذلك القطاع وحساب مساحته وعزم القصور الذاتي له مباشرة عن طريق تقسيم القطاع (Section) إلى عناصر (Elements) ولكل عنصر ندخل الطول والعرض.

مثال : قطاع على هيئة (T-soc) كما بالرسم :



- الفتار أي محور أفقى لننسب له بعد مركز الثقل للمناصر المفتلفة (Datum).
 - ٢- نقسم القطاع إلى عناصر مستطيلة القطع .
- ". ندخل الطول والعرض ويعد مركزه الثقل بالنسبة للمحور الاختياري Datum .
- ٤. يتم حساب المساحة وعزم القصور الذاتي للقطاع مباشرة عن طريق البرنامج ،



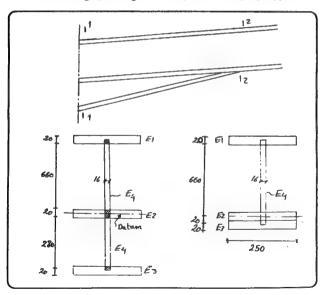
Element	Y mm	b mm	d mm
1	75	1500	150
2	-350	250	700

ويذلك نحصل على خصائص القطاع باستخدام البرنامج مباشرة ويدون أى حسابات من المستخدم

Area =
$$4000$$
 cm²
Inertia = 875880 cm⁴

ويمكن للبرنامج توصيف قطاعات واعضاء المنشأت الصيبية Steel Structures

مثال جزء من كمرة عند اتصالها بالعمود الراسي لاطار هيكلي (Frame) .



المختار المحور الانقى عند منتصف العنصر الثاني (Datum) .

Y_ تم تقسيم القطاع إلى اربعة عناصر عند القطاع الكبير Sec 1 والصغير Sec 2 مع مراعاة ان كل عنصر هو نفسه في القطاعين حتى لو تلاشي واصبح غير موجود نفرش طوله أو عرض = صغر وبذلك تصبح مساحته وعزم القصور الذاتي له = صغر أي أنه غير موجود .

وايضا لابد أن يكون المحور الافقى (Datum) في القطاعين في نفس الموضع أي عند منتصف العنصر الثاني .

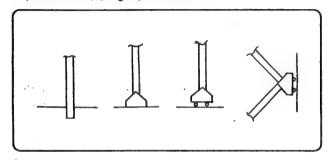
والجنول الاتي يوضع القيم المطلوبة لحساب المساحة وعزم القصور للقطاعين بواسطة البرنامج ويدون أي حسابات من المستخدم .

Sec 1				Sec 2			
Element	у	b	d	Element	у	b	d
1	680	250	20	1	680	250	20
2	0	250	20	2	0	250	20
3	-300	250	20	3	-20	0	20
4	200	16	960	4	350	16	660

ويهمل التداخل بين العصب (Web) والفلنشة (Flange) الوسطى في حسباب المساحة وعزم القصور الذاتي للقطاع في المائتين .

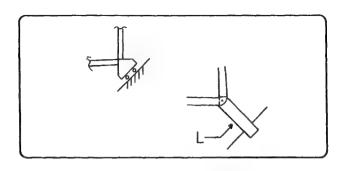
الركائز: Supports

بعد ادخال الشكل الهندسي المنشأ علي هيئة نقاط (Joints) وأعضاء (Members) ويتم ذلك وكذاك المكان (Supports) ويتم ذلك الكائز (Supports) ويتم ذلك على أساس مقاومتها الحركة في الاتجاه الأفقى والرأسي والدوران (Resistance in X.Y. Angular)



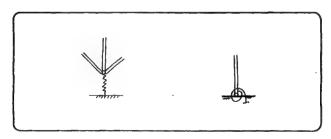
Support Resistance	Fixed	Hinged	VL Roller	HZ.Rroller
X-direction Y-direction Angular Direction	Full (F) Full (F) Full (F)	Full (F) Full (F) Zero	Zero Full (F) Zero	Full (F) Zero Zero

وكما نعلم في حالة الدعامة التي تسمح بالحركة للستقيمة (Roller) إذا كانت في وضع ماثل كما بالشكل فيلزم فرض عضو غير مؤثر (Dummy) طوله ل وندخل كافة بيانات هذا العضو كأى عضو عادى .



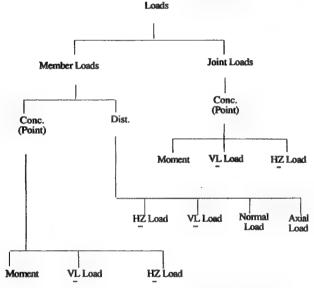
واجعل رد الفعل (Reaction) في اتجاه عدودي على السطح المائل تفرض قيمة كبيرة لساحة المضوعة المسلحة المضوعة (Normal Force) إما عند المضوعة المضوعة المضوعة المسلحة المضوعة المسلحة المسلح

ويسمح البرنامج أيضا بانضال الركائز المرنه Elastic Supports مثل الزنبرك (Spring) وتعطى قيمة لمقاومة الركيزة في أي اتجاه وهي تعبر عن القوة اللازمة لتحريكها في هذا الاتجاه بمقدار وحدة أطوال أو دوران .



الاحمال Loads

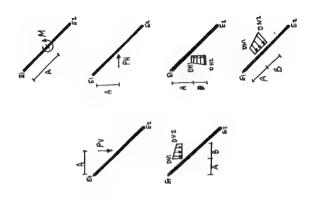
ً بعد الانتهاء من ادهال الركائز نبدا في تعريف الاحمال البرنامج، وفي البداية يجب ان نتعرف على انواع الاحمال المختلف وهي



ربعد ذلك نعد البيانات الاتية

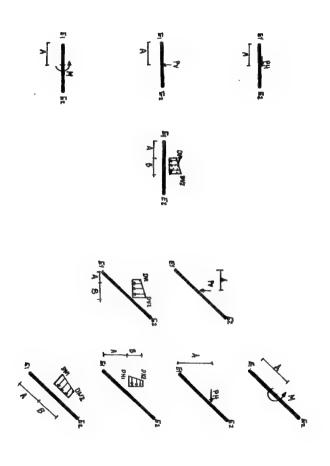
\ _ تسميه كل الاحمال المتوقعة على المنشأ (...Dead Load, Live Load,...)

٢ ... تحديد الاحمال المتوقعة على كل عضو بالنشأ (Member Loads) مقدار واتجاه
 ونطاق التأثير او على كل نقطة بالنشأ (Joint Loads) مع مراعاة الاشارات الموجبة
 المضمة بالرسم



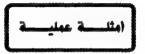






- ونلاحظ الاتي: ــ
- _ الاحمال الرأسية موجية في الاتجاه لاسفل (Vertical Loads)
- _ الاحمال الافقية موجية في الاتجاه اليمين (Horizontal Loads)
- ــ الاعمال العموبية على طول العضو موجبة عندما يكون عزمها حول النهاية الاولى
 (Normal Loads) العضو في اتجاه عقرب الساعة (E1)
 - _ الاحمال المحررية مرجبة عندما تتجه النهاية الاولى (Axial Loads)
 - _ العزوم موجبة في عكس اتجاه عقرب الساعة |
 - يرمز بالحرف (A) البعد بين نقطة تأثير الحمل المركز والنهاية الاولى(Point Load)
- يرمز بالمرف (A) البعد بين بداية تأثير الممل المرزع (Piont Load) والنهاية الايلي (EI) والطول الموثر يرمز له بالمرف (B)
- يؤثر العمل المرزع (Dist Load) على طول العضو بالكامل أو جزء منه وله قيمتان عند النهاية الاولى (El) والنهاية الثانية (E2)
- ـ يعرف العمل الموزع بانتظام (Uniform Dist. Load) بانه يؤثر على طول العضو بالكامل وله قيمة واحدة عند النهاية الاولى (E1) والثانية (E2)

البسباب الزابسسج

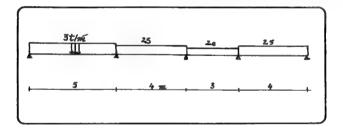


أمثله عملية

بعد الانتهاء من إتقان الخطوات الأساسية للبرنامج والتي تم شرحها في الأبواب السابقه نبدأ في حل الأمثلة التالية بالتفصيل وباستخدام الحاسب الشخصى مع شرح تفصيلى كامل لكل منها:

ا - المثال الأول :

كمرة مستمرة (Continuous beam) وعليها أهمال موزعة بانتظام (uniform distributed load) كما يالرسم :



- خطوات الحل :

١- بعد تحميل البرنامج نضغط [٢] للاستمرار فتظهر لنا الشاشة الاتيه :

- 0 End program
- 1 Start New Job
- 2 Reselect Previous Job
- 3 Disk Utilites

4 Joh Size check

Before running a job for the first time, seelect option 3 from the above menu, then make a data disk and backup copies of the program disk(s).

Key option required

F1 F2 Help Calc NUMLOCK is ON

٢- نضعط [١] البدء في ادخال بيانات منشأ جديد 1 Start new Job فتظهر لنا الشاشة
 التالية:

Start a new job

Ensure that the ANALYSE Security Diskette is in the floppy drive

This disk must not be removed whilst the job is in progress or the program will stop and the data just entered will be lost.

Press 1 when ready to continue, or ESC to escape to the main menu

F1 HELP F2 CALC NUMLOCK

is ON

والفرض منها التلك من وجود (Security diskette) في المشفل (A or B) . ٣- نضغط (١) للاستمرار فتظهر اذا الشاشة التالية : List of jobs on disk

NO JOBS ON DATA DISK

Enter new job reference (1 to 6 chars)

Job Reference = 0

(Press ESC to escape)

F1 F2 help Calc NUMLOCK is ON

وبها اسماء المنشات السابقة التي تم طها.

و ملاحظة هامة :

فى حالة ادخال اسطوانه غير (Security diskette) ان تستطيع التعامل مع البرنامج فى حالة ادخال اسطوانه غير (Security diskette فى المشغل الخاص بها ولا فى المستفناء عنها لتشفيل البرنامج من البداية إلى النهاية ولا تخرج من المشغل الخاص بها إلا بعد الانتهاء من استخدام البرنامج .

4- ندخل اسم المنشأ وليكن (Beam) بحيث لا يزيد عن سنة أحرف وفي حالة الرغبة في - قدخل اسم المنشأة السابقة نضغط [Esc] وبعد الخال الاسم نضغط [Inter] . Joh Reference = Beam

فتظهر لنا الشاشة التالية :

List of Jobs on disk

49 Kb space free

NO JOBS ON DATA DISK

Enter new job reference (1 to 6 chars)

Job Reference = BEAM

· Correct Y N

FI F2 Calc

Help

NUMLOCK is ON

والموافقة على الاسم نضغط [Y] والتغير الاسم نضغط [N]

Correct [Y] [N]

ه- نضف [Y] فتطير إنا الشاشة التالية :

Current job refenence = BEAM

0 End this job

1 Joint Positions

Key option required

F1 Help F2

Calc

NUMLOCK

is ON

بالضغط على [0] ننهى هذا المنشأ بدون ادخال اي بيانات

أما بالضغط على [1] ندخل نقاط المنشأ Joint Positions [1] .

١- نَشِغُطُ [1] فتظهر لنا الشاشة التالية :

Joint positions

Jt. X coord Y coord

No. (m) (m)

1 0.000<

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is ON

السطر الأول به عنوان الشاشة نقاط المنشأ Joint positions

والثاني به رقم كل نقطة سيتم ابخال احداثياتها Jt NO .

وأيضا الاحداثي السيني (X coord) والصادي (Ycoord) ووهدة الأطوال هي المتر.

وفى اسفل الشاشة توجد مريعات عليها ارقام مفاتيح الوظائف بلوحة المفاتيح (F1 , F2 , F6 , F7 , F8 , F9 , F10)

فبالضغط على [F1] في أي لعظة تظهر شاشات للساعدة والرجوع لشاشة الانتقال نضغط [Esc] .

ويلاحظ ان شاشات المساعدة تتوافق المعلومات المجودة بها مع شاشة الانشأل .. وهكذا .. فمثلا هنا توضع شاشات المساعدة قواعد انخال احداثيات نقاط المنشأ .. وهكذا .. والتنقل بين شاشات المساعدة نضغط [F3] الرجوع والتنقل بين شاشات المساعدة نضغط [F6] الرجوع المعددة الكلف ، [F5] الرجوع الفهرس ، [F6] التقدم صفحة اللاسام ، [ESC] العودة الشاشة ابخال انقاط المنشأ .

وبعد هذه الجوله السريعة نبدأ في انخال احداثيات نقاط المنشأ وهي :

JT	Х	Y
1,	0	0
2	5	0
3	9	0
4	12	0
5	16	0

- ويلاحظ أن الموشر المضئ عند التقطة رقم (١) وينتظر اعطاء الاحداثي السيني (X)
 لها وقيمته (صفر) ثم نضغط [Enter] للانخال . ندخل قيمة الاحداثي الصادي (Y)
 وقيمته (صفر) ثم نضغط [Enter] للأنخال .
- وينفس الطريقة ندخل احداثيات النقطة (٢) وهي (٥ ، مدفر) وهكذا حتى النقطة
 (٥) وهي (١٦ ، معفر) .
- « ولتعديل قيم الاحداثيات نستخدم [F6] الوصول إلى قمة البيانات أو البداية ، [F7] للوصول إلى الشانة الأعلي ، [F8] للوصول إلى الشانة الأسفل ، [F10] للوصول إلى نهاية البيانات .

٧- بعد الأنتهاء من البقال الاحداثيات تظهرانا الشاشة التالية :

Joint p			
Jt.	X cord	Y cord	
No	(m)	(m)	
1	0.000	0.000	
2	5.000	0.000	
3	9.000	0.000	

0.000	12.000	4
0.000	16.000	5
	0.000	_

6 0.000

Input mode

 F1
 f2
 F6
 F7
 F8
 F9
 F10
 ESC
 NUMLOCK

 Help
 Calc
 Top
 Up
 Down
 Commund
 Bottom
 Escape
 is ON

-٨ نضغط [ESC] لتسجيل احداثيات نقاط المنشأ فتظهر لنا الشاشة التالية :

Current Job reference = BEAM 48Kb Disk space free

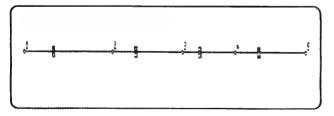
0 End this job

1 Joint Positions

2 Member Locations & fixity

D Draw the Structure

٩- نفىفط [2] لانخال بيانات أعضاء المنشأ (Member Location & Fixity) الموضعة
 بالرسم:



فتظير أنا الشاشة التألية :

Member location and fixity

Mem J1. Jnt X1 Coord Y1 Coord 12 . Jnt X2 Coord Y2 Coord Length Slope
No no. con (m) (m) no. con (m) (m) (m) (deg)
1 0<

Inpout mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commund Bottom Escape in ON

وطبقا النواعد الخال الأعضاء الموضح صفحة (٥٣) فعند النقطة (١) لابد من وجود عضو واحد على الأقل (٦) وعن النهاية الثانية يتولد عزم سالب (Fixed) معنو (agative moment) ضلايد من وجود (٣) أيضا وهكذا تم ترصيف أعضاء المنشأ الموضحة بعالية .

نعود مرة أخرى لانخال البيانات فالسطر الأول به العنوان أعضاء المنشأ وخصائص (Memb. NO) وصاحتها (Memb. NO) والثاني يوضحه رقم العضو (Member Location and Fixity) ورمانتها (Jan. Con) والاحداث السينى لها (Jan. Con) والاحداث السينى لها (Jan. Con) والاحداث السينى لها (Jan. NO) والاحداث المادى لها (Y1 Coord) والاحداث المادى لها (Jan. Con) والاحداث السينى (X2 Coord) والاحداث المادى لها (Y2 coond) ويمكن إدخال نيانات العضاء المنشأ كالآتى :

J1	J1.com	J2	J2.Con
1	F	2	F
2	F	3	F
3	F	4	F
4	F	5	F
	1	1 F 2 F 3 F	1 F 2 2 F 3 3 F 4

ونعود مرة أخري لادغال البيانات البرنامج فيلاحظ وجود المؤشر عند بيانات العضو الأولى (1 Jointl) (1) ثم الأولى (1 (1 Jointl) (1) ثم حالتها (4) (1 Jointl) ثم حالتها (5) والموافقة نضغط [Enter] فتظهر على الشاشة احداثيات النقطة (1) تلقائيا (صفر . صفر) ثم ندخل النهاية الثانية وهي نقطة (2) (Jointl) وحالتها (5) والموافقة نضغط (Enter) فتظهر احداثيات النقطة (2) على الشاشة تلقائيا ثم طول العضو (Length) وميله Slope وينفس الطريقة ندخل باقي أعضاء المنشأ حتى العضو الرابع والأخير فتظهر الشاشة التالية:

Member:	Location	and	fixity
---------	----------	-----	--------

Mem J1. Jnt X1Coord Y1Coord J2 Jnt X2Coord Y2coord Length Slope no Con (m) (m) no con (m) (m) (m) (deg) 0.000 2 0.000 5,000 0.000 5.000 0.000 0.000 3 5.000 4.000 F 9.000 0.000 0.000 3 3 F 9.000 0.000 4 F 12,000 0.000 3.000 0.000 F 0.000 5 12,000 F 16.000 0.000 4.000 0.000 5

Input mode

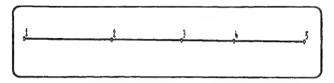
F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top up down commnd Bottom Escape is ON ملاحظة : عند حدوث أى أخطاء فى إيضال بيانات الاعضاء تستخدم مغانيج الوظائف (Function Keys) الموجودة أسفل الشاشة التمسطيح وهى [F6] الوصول إلى يداية البيانات و [F1] الصعود لاعلى و [F8] الهوط لاسفل و [F10] انهاية البيانات .

وبعد الأنتهاء من تعديل البيانات نضغط [ESC] للتسجيل فتظهر لنا الشاشة التالية :

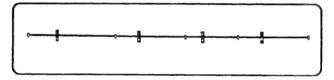
Current Job reference = BEAM	47 kb Disk space free
0 End this job	
1 Joint positions	1
2 Member locations & fixity	
3 Properties	
D Draw the Structure	
	1
	l
Key option required	
F1 F2	NUMLOCK
Help Calc	is ON
ة رسم النشا والتأكد من ايعاده ونقاطه	الشاهد (Draw the structure) [D] الشاهد
	واعضائه فتظهر لنا الشاشة التالية :
	

ويها كمره مستمرة وعند كل نقطة تظهر دائرة صفيرة وهي ليست مفصلة (Hinge) ولكن البرنامج يرسم كل Joint على هيئة دائرة صفيرة بصرف النظر عن حالتها إن كانت (Fixed) أن (Fixed) ستخدم مفاتيح الوظائف المجودة اسفل الشاشة .

فَمثلا نَضَفَّط [F4] ثم [F3] لاظهار نقاط المنشأ (Joints) على الرسم



أن نضغط [F4] ثم [F4] لاظهار اعضاء المنشأ (Members) على الرسم



أو نضغط [F4] ثم [F5] لاظهار نقاط واعضاء المنشأ (Joints & Members) على الرسم والعودة للشاشة الأولى بالرسومات نصغط [ESC] .

نضغط [F3] ثم [F4] للعودة للشاشة الأولى بدون أي ترقيم للنقط والاعضاء .

نضغط [ESC] ثم Y للعودة للشاشة الرئيسية

١١- نفسفط [3] لايخال خصائص قطاعات واعضاء للنشأ (properties) فتظهر لنا
 الشاشة التالية:

Table of Sections

Section Area Inertia No. of

No. (cm2) (cm4) Elements

1 0.000

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up down commnd Bottom Escape is ON

ويوجد بالسطر الأول العنوان وهر جنول قطاعات اعضاء المنشأ (Table of sections) ويوجد بالسطر الشائى به قطاع رقم (١) (Section No1) والمساحة (Area Cm2) وعزم التساطر الشائى به قطاع رقم (١) (No of Elements) وعدد العناصر المكانة القطاع (Inertia Cm4)

نفرض أن قطاع الكمرة المستمرة ثابت وهو ٢٥سم × ٤٠ سم مثلا فتكون المساحة = ٠٠٠١ سم٢ وعزم القصور الذاتي = ١٢٣٣٢٣ سم٤ .

نستخدم مفاتيع الوظائف الموجودة اسفل الشاشة نضغط [F9] (Command) ثم (Member) [F6] التوضيع قطاعات كل عضو من اعضاء المنشأ فتظهر لتا الشاشة (التالة:

Table of	Table of Section Member Section Properties								
Section	Area	Inertia	No. of	Mem	Member		No. 3	Sec.	Modulus E
No	(cm2)	(m4)	Elements	No.	Length	N/P	Seg	No.	(N/mm2)
1	1000.000	133333.33	0	1	5.000	P	1	3	21000
2	0.000			2	4.000	P	1	1	21000
				3	3.000	P	1	1	21000
				4	4.000	P	1	1	21000

input mode

 F1
 F2
 F6
 F7
 F8
 F9
 F10
 SEC
 NUMLOCK

 Help Calc
 Top
 Up
 Down
 Commnd
 Bottom
 Escape
 is On

يوجد بالسطر الأول خصائص قطاعات الأعضاء (Member Section Properties) ويوع القطع (NVP) على ورقم العضو (Member Length) ويوع القطع (NVP) على ورقم العضو (Member NO) ويقير منتظم المقطع (Prismatic) أو غير منتظم المقطع (non prismatic) ورقم القطاع الخاص بالعضو وتم النظال كل المضو الغير منتظم المقطع (No. Seg) ورقم القطاع الخاص بالعضو وتم الشاشة (Sec.No.) ثم معامل ينج بوحدة (N/mm2) واتحويله إلى المعامل الخاص بالخرسانة نقسم على المعامل ١٠ : ١٥ .

نضغط (P) لجعل المضو الأول منتظم المقطع (Prismatic) من النهاية الأولى حتى (Prismatic) من النهاية الأولى حتى النهاية الثانية فتظهر عبد الاقسام (NO.Scg) بقيمة = ١ وبعد ذلك ندخل رقم القطاع (Sec.NO.) بقيمة = ١ وهو موجود في يسار الشاشة المساحة = ١٠٠٠ سم٢ (Area) وعزم القصورالذاتي = ١٠٠٠ سم٢ (Incrtia) وتعدل قيمة معامل ينج من الصديد

(٢٠٠٠٠ نيوټين/مم٢) إلى الفرسانة بالقسمة على (١٠–١٥) وتصبيح قيمة معامل ينج من ١٤٠٠٠ - ٢١٠٠٠ نيوټن /مم٢ ندخل نفس القطاع لباقى الاعضماء حتى الرابع والاخير.

ملاحظة: نستخدم زر الادخال [Enter] للموافقة على القيم السابقة في كل مرة التعديل في أي بيانات نستخدم مفاتيح الوظائف الموجودة أسفل الشاشة نضغط [ESC] التسجيل فتظهر الشاشة التالية:

Current Job reference = BEAM 47 Kb Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- D Draw the Structure

نضغط [2] لابخال الركائز (Supports) فتظهر الشاشة التالية :

Supports

No. Jnt X Restraint Y Restraint A Restraint
Pos (Kn/nm) (KN/mm) (KN/m/rad)
1 0

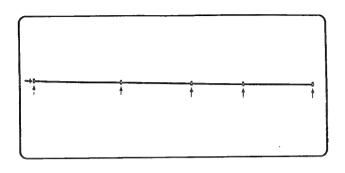
Input mode

يوجد بالسطر الأول العنوان وهو الركائز (Supports)

والسطرالثاني به رقم الركيزة (.No.) الاولى والثانيه وهكذا ورقم نقطة المنشأ المناظرة لرقم الركيزه فمثلا 32 هي الركيزة رقم ١ وهكذا ثم مقاومةالركيزة في الاتجاه الافقى (X restraint) والاتجاه الرأسي (Restraint) والدوران(A restraint) .

ندخل نوع الركائز طبقا للجدول التالي وكما بالرسم:

Support	NO	Jnt Pos	X Restraint	Y Restraint	A Restraint
Hinge	1	1	Full	Full	Zero
Roller	2	2	Zero	Full	Zero
Roller	3	3	Zero	Full	Zero
Roller	4	4	Zero	Full	Zero
Roller	5	5	Zero	Full	Zero



ونستخدم حرف (F) لتعريف (Full) و (Z) لتعريف (Zero) فتظهر لنا الشاشة لتألية:

Jnt	X Re	ntenint .			
		SHAUIT	Y Restraint	A Restraint	
Pos	(KN	/mm)	(KN/mm)	(KNm/rad)	
. 1	1	Full	Full	Zero	
2		Zero	Full	Zero	
3		Zero	Full	Zero	
4		Zero	Full	Zero	
5<		Zero	Full	Zero	
ut mo	de				
F2	F6	F7 F8	F9	F10 ESC	NUMLOCK
	2 3 4 5<	2 3 4 5<	2 Zero 3 Zero 4 Zero 5< Zero ut mode	2 Zero Full 3 Zero Full 4 Zero Full 5< Zero Full ut mode	2 Zero Full Zero 3 Zero Full Zero 4 Zero Full Zero 5< Zero Full Zero tut mode

تستخدم مضاتيح الوظائف الموجودة في أسفل الشاشة لتعديل أي بيانات نضغط [ESC] لتسجيل فتظهر لنا الشاشة التالية :

Current iob reference = BEAM.

47Kb Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case name
- D Draw the Structure

يمكن الآن الخال الاحمال المؤثرة على الكمرة المستمرة نبدأ في ذلك كالاتي :

ـ نسمى كل الاهمال المتوقعة على المنشأ (Load case names) مثل الهمل الميت (Dead Load) والمن(Live Load) والرياح (wind load) . . . الغ .

والسهولة نفرش ان العمل المورع بانتظام طى الكمرة المستمرة هو حمل ميت . (Dead Load)

١٢ نضغط [5] فتغلور الشاشة التالية :

Global load case names

No. load Case Name

Dead Load

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCk . Help Calc Top Up Down Commnd Bottom Escape is ON

يوجد بالسطر الأول العنوان وهو اسماء الاحمال المؤثرة علي المنشأ Global load). (case names

والسطر الثاني به اسم العمل ورقمه (No., Load Case name) ويظهر دائما العمل الليت (Dead Load) في السطر الثالث ولا يمكن اهماله .

نَصْفَط [ESC] التسجيل والمرافقة علي وجود الحمل الميت فقط ، فتظهر الشاشة التالية:

Current job reference = BEAM

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load Case names
- 6 Member loads
- 7 Joint loads
- D Draw the Structure

Key option required

F1 F2 Help Calc NUMLOCK is On

- التعريف الأحمال المقتلفة المؤثرة على الاعضاء نصفط [6] (6 Member Loads) .
 - لتعريف الأحمال المُعْتَلَفَة المؤثّرة على نقاط المنشأ نضغط [7] (7 Joint Loads) .

ويلاحظ أن العمل المؤثر علي الكمرة المستمرة من النوح الأول نضغط [6] فتظهر الشاشة التالية :

	MEMBER	LOADS
	Mem	No. of
i	No.	Loads
	1	0
	2	0
	3	0
	4	0

Command mode

F1 F2 F3 F4 F7 F8 F9 F10 ESC NUMLOCK Help Calc Go to: Delete Up Down Input: Print: Escape is ON يوجد بالسطر الأول العنوان وهو الأحمال المؤثرة على الأعضاء (Mem No., No. of Loads). السطرالثاني به رقم العضو وعدد الاحمال المؤثرة عليه (Mem No., No. of Loads) ١٣٠ـ ندخل الاحمال باستخدام مفاتيح الوظائف الموجودة اسغل الشاشة نضغط [F9] فتظهر (Input) فتظهر الشاشة التالية :

MEMBI	ER LOADS	
Mem	No of	
No.	Loads	
1	0	
2	0	
3	0	
4	0	
	plied loads and moments	
	SC to escape)	
Fi	F2	NUMLOCK
Help	Calc	is ON

ويوجد سؤال في اسفل الشاشة وهو عن رقم العضو المطلوب تعريف الاحمال المؤثرة عليه ، نبدأ بادخال الاحمال المؤثرة على المضو الأول (Member 1) .

ندخل رقم العضو وقيمته = \ ثم نضغط [Enter] للايخال فتظهر الشاشة التالية :

MEMBER LOADS Loads & moments on Member 1 (length= 5.000m slope = 0.000deg)

-		-					
Mem	No.of	Ld	Load Case	Load	Start	Loaded	(KN. KN.m or KN/m)
No	Loads	No.	Number&name	Туре	Pos(m)	Len(m)	Start val. End val
1	0	1	1 Dead Loa	d UV			30.000
2	0	2	1				
3	0						
4	0						

Transfer loads to other Members ? Y/N

يوجد بالسطر الأول العنوان وهو الاحمال المؤثرة علي الاعضاء (Member Loads) ويجد بالسطر الأول العنوان وهو الاحمال المؤثرة على المضو الأول (Loads & Moments on Momber) وكذلك وللاحمال والعزيم المؤثرة على المضو الأول (Loads & Moments on Momber) . (Length = 5m, slope = 0.00 deg)

السطر الثاني به رقم العضو ثم عدد الاحمال المؤثرة عليه (No of Loads) ثم رقم الصل (Load case Number & name) وسبق تعريفها الحمل (Load case Number & name) وسبق تعريفها في الخطوة السابقة (Load Type) في الخطوة السابقة (Start pos m) ويوجد نوع الحمل (Start pos m) وتعته عند النهاية الأولى (Start Val.) وعند النهاية الثانية (End Val.) بوحدات كيار نيوتن ، متر ويجب مراجعة قواعد الخال الاحمال جيدا الموجودة صفحة (6 آ) .

نستخدم مفاتيع الوظائف الموجودة في اسفل الشاشة لتعريف نوع العمل الميت (Dead load) فمثلا نضغط (F3] (Point Load) لادخال حامل يؤثر في نقطة (Concentrated load) وعلى أي بعد من نهايته الاولى .

ولادخال عزم مؤثر في نقطة من العضو الاول وعلى أي بعد من نهايته الأولى نضغط [F4] (Moment) .

ولايخال وزن المتر الطولى من العضو الاول نضغط [F5] (Self wt) ولايخال حمل موزع يؤثر بانتظام (U.D.LD) [F6] نضغط (Uniform distributed load) .

ولانشال همل موزع (مثلث أو شبه منصرف) (Distrib. Load) نضغط ([F7] . (DISTRIB)

وبمراجعة الاحمال الميته المؤثرة علي الكمرة المستخدمة فالعضو الاول عليه ٣ طن /م مرزعة بانتظام (U.D.kd) من النهاية الاولى (Irl) إلى النهاية الثانية (Jr2) .

وهناك مالاحظة هامة يعرف العمل الوزع بانتظام (U.D.LD) بانه يبدأ من النهاية الأولى وينتهى عند النهاية الثانية العضووينفس القيمة ولا يصبح ان يزثر علي جزء من العضو وإذا حدث ذلك يعرف العمل بانه حمل موزع (Distrib) وليس موزع بانتظام (U.D.L) فتلحظ ظهور حرف (U) وتعنى أن العمل موزع بانتظام (U.D.L) ونستخدم [F3] لتعريف اتجاه الحمل بانه راسى (Vertical) أو [F4] للاتجاه الافتى أو [F5] للاتجاء العمودي على محور العضو (Normal) أو [F6] في اتجاه المحود).

وطبعا الممل المورع بانتظام على العضو الاول اتجاهه راسيا لاسفل أى موجب طبقا لقاعدة اشارات الاهمال الموضحة صفحة (٦٥) أو باستخدام شاشات المساعدة بالضفط على [F1] والعودة لشاشة الادخال باستخدام زر الهروب [ESC] .

ـ نضفط [F3] (Vertical) وبالاحظ ظهور حرف (V) وبعني حمل موزع بانتظام واتجاهه راسي .

 والأن تم انخال العمل الميت (Dead Load) على العضو الاول.

ـ نضغط [ESC] التسجيل فيظهر سؤال في اسغل الشاشة عل نوع وتيمة واتجاه الاحمال المؤثرة علي العضو الثاني مثل الاول فنجيب لا أي نضغط [N] فتظهر الشاشة التالية:

MEME	ER LOADS	
Mem	No.of Loads	
1	1	
2	0	
3	0	
4	0	

Command mode

F1 F2 F3 F4 F7 F8 F9 F10 ESC NUMLOCK Help Calc Go to : Delete Up Down Input : Print : Escape is ON

تلامط أن عند الاحمال المؤثرة علي العضو الاول = ١ وهو الممل الميت (Dead Load) بدلا من (صفر) قبل انخال هذا العمل .

- نضغط [F9] (Input) المُهِورة في اسفل الشاشة لانخال الاحمال على العضو الثاني حتى الرابع فتظهر الشاشات التالية تباعا :

```
        MEMBER LOADS Loads & moments on Member 2 (length= 4.000 slope≈0.000deg)

        Mem
        No.of
        Ld.
        load case
        Load
        Start
        Loaded
        (KN,KN.m or KN/m)

        No
        Loads
        No.
        Number & name
        Type Pos(m) Len(m)
        Start val.
        End val.

        1
        1
        1
        Dead Load
        UV
        25.000

        2
        0
        2
        1

        3
        0
        4
        0
```

 MEMBER LOADS Loads & moments on Member 3 (length= 3.000 slope=0.000deg)

 Mem
 No. of
 Ld.
 load case
 Load
 Start
 Loaded
 (KN,KN.m or KN/m)

 No
 Loads
 No.
 Number & name
 Type Pos(m) Len(m)
 Start val.
 End val.

 1
 1
 1
 Dead Load
 UV
 20.000

 2
 1
 2
 1
 3
 0

 4
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MEMBER LOADS Loads & moments on Member 4 (length = 4:000 slope=0.000deg)

Mem No.of Ld. load case Load Start Loaded (KN,KN,m or KN/m)

No Loads No. Number & name Type Pos(m) Len(m) Start val. End val.

1 1 1 Dead Load UV 25:000

2 1 2 1

3 1

4 0

Current job reference = BEAM

64Kb Disk space free

- 0 End this job
- 1 Joint positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member loads
- 7 Joint loads
- 8 Combinations
- D Draw the Structure

ولائمال أي أحمال تؤثر علي نقاط المنشأ (Joint Loads) نضغط [7] ويمكن تخطى هذه المعلوة لعدم وجود تلك الأحمال في المثال العالى .

ولتعريف هالات التعميل المكهنة من العمل الميت والعي واحمال الرياح . . . الخ .

١٤ ـ نضغط [8] فتظهر الشاشة التالية :

Safety Factors for combination

Load Case

Safety

Number and name factor

Enter no. of combinations - max = 428

How many? O<

(Press ESC to escape)

F1 F2

NUMLOCK

Help Calc

is ON

يوجد بالسطر الأول العنوان وهو عامل الامان لحالة التحميل Safety Factors For().

Combination)

السطر الثاني يه رقم العمل واسمه (Load Case number and name) وعامل الامان (Safety Factor) .

وفى اسفل الشاشة تظهر عبد حالات التحميل المكنة للكمرة المستمرة وهي ٤٢٨ حالة والسبولة نفترش حالة واحدة وهي الممل الميت نقط (Dead Load) ومضروبا في عامل أمان = ١ .

نكتب [١] ثم نضغط [Enter] للإدخال فيظهر اسم الحمل الميت (Dead Load) ندخل عامل الامان = ١ ثم نضغط [Enter] للإدخال كما بالشاشة التالية :

Safety Factors for combination 1

Load Case Safety

Number and name factor

1 Dead Load 1.000

نضغط [ESC] التسجيل فتظهر الشاشة التالية :

Current job reference = BEAM 45.5K Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member Loads
- 7 Joint loads

- 8 Combinations
- 9 Analysis / Results
- D Draw the Structure

وأخيرا تم ادخال كل بيانات المنشأ وهي الابعاد والنقاط والاعضاء والقطاعات والاحمال وحالات التحميل المختلفة والآن يمكن الدء في حل الكمرة.

نَصْغَطُ [9] فَتَظْهِرِ الشَّاشَةِ التَّالِيةِ :

Current job reference = BEAM 54.5K Disk space free

- 0 End this job
- 1 Revise data
- 2 View results on screen
- 3 Print input data and results
- D Draw the structure

(NB: Calculations not yet done)

- لانهاء المنشأ بدون حل نضغط [صفر] (D End this job)
 - _ للعودة لبيانات المنشأ نضغط [١] (1 Revise data)
- ـ البدء في حل المنشأ وإظهار النتائج على الشاشة نضغط [٢]

(2 View Results on Screen)

- ـ لطباعة بيانات ونتائج المنشأ على الطابعة بعد الحل نضغط [٢] (3 Print input data and results)
 - . (D Draw the structure) [D] ـ أرسم المنشأ تضغط

والسطرا لأخير يوضح أن الحسابات الانشائية للكمرة لم تبدأ بعد (Calculations not yet done)

٥١- نضغط [٢] للبدء في الحل فتظهر خطوات الحل على الشاشة :

```
Final stiffnes calculations for member (1)

" " " " " " " (2)

" " " " " " (3)

" " " " (2)

Loading data for member (1)

" " " " (2)

" " " " (3)

" " " (4)

Calculating result for member (1)

" " " " (2)

" " " (3)

" (4)
```

ثم في النهاية تظهرالشاشة التالية :

Current job reference = BEAM

- 0 Exit to main menu
- 1 Results (L/4)
- 2 Summary of Maxima
- 3 Joint Displacements and Reactions
- 4 Summations of Forces and Moments
- D Draw the structure, Deflections, Moments & Forces

- تظهر بيانات بنتائج المنشأ كالآتي :

Joint positions
Jt. X coord (m) (m)
1 0.000 0.000
2 5.000 0.000
3 9.000 0.000
4 12.000 0.000
5 16.000 0.000

Input mode

F1 Relp	F2 Calc	To		7 lp	F8 Down	F9 Commd	P10 Bottom	ESC	NUMLOCK is ON
nerp	Care	10	ρ 0	P	DOWI	Committee	BOLLOM	sacape	15 OH
Member	location	and fixity	у						
Hem Jl.	Jnt X1	Coord Y1	Coord	J2.	Jnt	X2 Coord	Y2 Coc	rd Length	Slope
No. no.	con	(=)	(m)	no.	con	(m)	(=)	(m)	(deg)
1 1	F	0.000	0.000	2	F	5.000	0.0		0.000
2 2	F	5.000	0.000	3	P	9.000	0.0		0.000
3 3	F	9.000	0.000	- 4	P	12.000	0.0	00 3.000	0.000
4 4	₽ :	12.000	0.000	- 5	F	16.000	0.0	00 4.000	0.000

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC MUNLOCK Relp Calc Top Up Down Command Bottom Escape is ON

Table of Sections

Section Area Inertia No. of (cm4) (cm4) Elements
1 1000.000 133333.33 0

Input mode

Pl Help	F2 Calc	r6 Top		F8 OWS C	r9 F10	ESC n Escape	HUNIDON is ON
Table of	Sections			Nemb	er Section	Propertie	8
Section	Area	Inertia	Mo. of	Mess	Hember	No. Sec	. Modulus E
No.	(cm2)	(cm4)	Elements	No.	Length N/	P Sag No.	(N/mm2)
1 1	1000.000	133333.33	0	1	5.000 P	i t	21000.000
2				2	4.000 P	1 1	21000.000
				3	II.00# P	1 1	21000.000
				4	4.000 P	1 1	21000.000

Input mode

	rl olp		r2 alc	P6 Top	g7 Up	P8 Down	P9 Commad	F10 Bottom	RSC Escape	NUMLOCK is on
	Jnt Pos	×	Restraint ()tH/mm)	Y Rest:		A Restr				
1 2	1<		FULL		FULL		ZERO			
3	3		1ERO 1ERO		PULL		EERO			
5	5		SERO		FULL		EERO			

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load
2

Input mode

Fl	F2		P6	F7	P8	29	F10	ESC	NUMLOCK
Belg	Calc		Top	Up	Down	Commid	Bottom	Escape	is ON
Mean	R LOADS Mo.of Loads 1 1	Ld.	& mome Load ca Humber 1<	S name	Load	Start	Loaded	(kN,	m = 0.000deg) kN.m or kN/m ; al. End val. 000

Input mode

F1 Relp	F2 Calc		P6 Top		F8 Down		F10 Bottom		NUMLOCK
No. L		Ld. No.	Load case	name	Load	Star	Loaded	(kN, Start v	e = 0.000deg) kN.m or kN/m ; al. End val. 000
1 2 3 4	1	i		odad	INAIG 04			23.	000
		Inp	ut mode						

F2 F6 PB. MUMLOCK Help Calc Down Command Sottom Escape is ON Top Up Loads & momenta on Member 3 (length = 3.000m slope = 0.000deg)
Ld. Load case Load Start Loaded (kM, kK.m or kM/m)
Number & name Type Pos(m) Len(m) Start val. End val.
1 1< Dead Load UV 20.000 MEMBER LOADS No.of Loads 1 2 3 4 1 ī î

Input mode

Pi Helj	F2 Calc	F6 F7 F8 F9 F10 ESC MUNLOCK Top Up Down Command Bottom Escape is ON	
MEMBER Mem No.	No.of Loads	Loads & moments on Member 4 (length = 4.000m slope = 0.000deg) Ld. Load case Load Start Loaded (RM, kN.m or kM/m) No. Number & name Type Pos(m) Len(m) Start val. End val.	
1 2	1 1	1 1< Dead Load UV 25.000	

3 1 4 1

Input mode

Input mode

F1 Help	F2 Calc	F6 Top	F7 Up	F8 Down	F9 Commend	F10	ESC Escape	NUMLOC!
							- and a po	24 011
			*				8OL *	: BEAM
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*********	nn (c)cob	Arranc comb	WERT STI	or nest	du paral	ces rim	rced 1382	
						*******		********
RAME CE	UMETTERY							

Nol of Joints = 5

MEMBERS

:-		End 1 Des	ails		:	End 2 Det	ails					
						X Coord						
						(=)						
1:	1:F:	0.000	:	0.000	: 2:P:	5.000	2	0.000	:	5.000	2	0.00
2:	2:F:	5.000	:	0.000	: 3:P:	9.000	:	0.000	:	4.000	:	0.00
3:	3:F:	9.000	:	0.000	: 4:F:	12.000	2	0.000	4	3.000	:	0.00
4:	4:F:	12.000	Ŧ	0.000	: 5:F:	16.000	2	0.000	1	4.000	:	0.00
***		*******	cesso		*****	******	innae		-		-	******

TABLE OF SECTIONS

Section: Area: Inertia: Rectangular Elements (if specified) humber: (cm4]: No: D (mm): B (mm): Y (mm)

1: 1000.00: 133333.3: :

SUMMARY OF MEMBER PROPERTIES

Hember 1 - 4 PRISHATIC : Section Number 1 : Modulus E = 21000.0 N/mm2

No. of Supports = 5

							Angular Restraint
Number		(kN/mm }	8	(kB/mm)	8	(kN.m/radian)
	-:-			· :		- 2	
1	8		ULL	2	FULL	=	ZERO
2	8	2	ERO	1	FULL	\$	ZERO
3	8	2	ERO	2	PULL	8	ZERO
4	2	Z	ERO	:	PULL	8	ZERO
5	8	2	ERO	2	PULL	8	ZERO
magrees:	-	****	-======			E 12.	

APPLIED LOADS AND MOMENTS

MEMBER 1

LOAD CASE :LOAD: POSITION : LOAD / NONENT
No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 30.000 kM/m:

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APPLIED LOADS AND MOMENTS continued MEMBER 2 LOAD CASE :LOAD: POSITION : LOAD / MOMENT No : Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 25.000 kN/m: MEMBER 3 LOAD CASE :LOAD: POSITION : LOAD / MOMENT
No: Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 20.000 kN/m: MEMBER 4 LOAD CASE :LOAD: POSITION : LOAD / NONENT No : Name : Type: Start: Length: Start Value: End Value 1: Dead Load: UV : : : 25.000 kN/m: _____ COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS
L O A D C A S E : Combination Number : 1 _____:----1: Dead Load:1.000

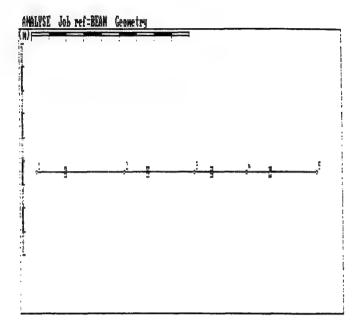
* JOB : BEAM

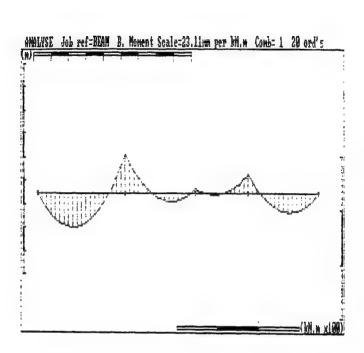
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*																	
• ANALYSE	(C)Cop	pyright	Compu	ter	and	Des	ign	Serv	ic	es	Lim	ited	198	5			
				RES.		4623		0200	==	-00	===				===		
RESULTS FOR	COMB	INATION	f 1.														
Joint Displ																	
Joint No. 1 2 3 4 5	dx (m	B) C	lv(m)		Ofra	dı		Px (kw	n		Pv	(1686)		16 1	kN.m.	
1	0.0	00	0.00	-1	0.00	34		0.	00	ó		60	.578		. ,	0.000	1
2	0.1	00	0.00	1	0.00	13		0.	00	0		154	.981			0.000	,
3	0.	00	0.00	- 1	0.00	102		0.	.00	0		55	.701			0.000)
4	0.	00	0.00	-1	0.00	07		0.	.00	0		97	.765			0.000)
5	0.	00	0.00	-	0.00	15		0.	.00	0		40	-975			0.000)
Summation o	f For	ces and	d Momen	ıts													
Member Load Joint Loads		Px ((kN)		Pv (k(0)		to (k	cΝ.	= 1							
Member Load	ls	0.	.000	-	410.	000		-3105	5.0	00							
Joint Loads		0.	.000		0.	000		0	0.0	00							
	-																
Reactions		0.	.000	-	410.	000		-3105	5.0	00							
Reactions Summation		0.	. 000		410.	000		3105	5.0	100							
Summation		0	.000		0.	000		0	0.0	00							
Maxima for																	
Load Shear	(kN)	Ha:	ximum A	Axia	1 ()	(M)	<		- B	lend	ing	Нов	ent	(kN.s	11		>
Comb. (Abs.	Max.	(Comp	ressio	1) (Tens	ion)	Max	c.+ve	B	Po	18.	(M)	Hax	ve	- 1	Pos.	(m)
1 -	-89.42	2	0.000		0.	000		61.1	161	ļ	2.	019	-	72.11	1	5.6)OC
Maxima for																	
Load Shear	Ckin	Max	kimum 4	Axia	1 (1	(N)	<		- 18	lend	line	Mon	ent	(ich -	١.		>
Comb. (Abs.	Max.) (Comp	ressio	11	Tens	ion	2643	c. +ve		Po	×.	(8)	Max	LVe	- 1	Pos.	(B)
1	65.55	9	0.000		0.	000		13.8	848	1	2.	622	-	72.11	1	0.	ÒOC
Maxima for																	
Load Shear	2-MIS	Men				-49.1	_					Man		4 3 m			
Load Snear Comb. (Abs.	(KB)	NACORES	XIMUM A	nala	ı (l	(M)	Me		- E	enc	iing	/ MOS	Mar.	(KN.S	1)	Do-	>
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1 -									-43	,		703		-20.03			
Maxima for	Nembe	r 4															
Load Shear	(kN)	Haz	ximum /	Axia	1 ()	(19)	<		- E	Benc	ling	Mos	ent	(kN.s	1)		>
Comb ()	May	140000		4	mana											2	í m s
Comb. (Abs. 1	men.	1 (comb	L68210	n) (reun	TOR	ra.	K. +VE	е .	PC)# .	(m)	Plas	(ve		POB.	

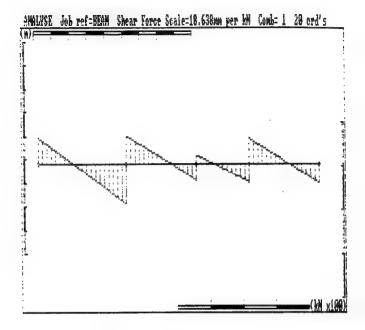
1.7

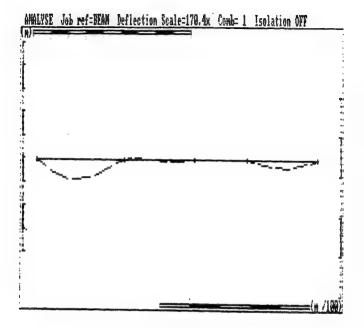
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			-*					* DATE:	
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			* A H	A L Y	SIS	RESUL	TS	*SHEET:	4
ANAT.VS	E (C)C	opyright Comp	uter an	d Desi	an Se			985	

		BINATION 1		_					
Positio	n (m)	Shear Force (kN) -89.422 -51.922 -14.422 23.078 60.578	Axial	Comp.	Bend	. Moment	dx	dy	Slope
from	End 1	(JcN)		(kill)		(lcN.m.)	(mm)	(mm.)	(deg)
t. 2	5.000	-89.422		0.000		-72.111	0.0	0.0	0.074
.75L	3.750	-51.922		0.000		16.229	0.0	-2.7	0.135
.50L	2.500	-14.422		0.000		57.695	0.0	-4.7	0.031
.25L	1.250	23.078		0.000		52.285	0.0	-3.7	-0.120
t. 1	0.000	60.578		0.000		0.000	0.0	0.0	-0.197
aximum -	ve Ben	ding Moment ding Moment	-72	.111 k#	.m at	5.000m	from	joint 1	
		I MOLTANIE							
Positio	00 (m)	Shear Force	Axial	CORp.	Bend	. Moment	d≖	dv	Slow
from	End 1	(kN)		(left)		(kN.m)	(mm.)	(2000.1	(deg
10. 3	4.000	-34.441		0.000		-9.876	0.0	0.0	0.01
. 75%	3.000	-9.441		0.000		12.065	0.0	-0.2	0.00
507.	2.000	15 559		0.000		9.007	0.0	0.0	-0 021
. 251.	1.000	40.559		0.000		-19.052	0.0	0.4	-0.019
t. 2	0.000	Shear Force (kN) -34.441 -9.441 15.559 40.559 65.559		0.000		-72.111	0.0	0.0	0.07
taximum -	ve Ber	ding Moment	-72	.111 ki	.m at	0.000m	from	joint 2	
RESULTS 1	FOR COR	BINATION 1	MEMBER	3					
Positio	on (=)	Shear Force	Awinl	Comp	Bood	Monent	dv	du	£1am
from	End 1	(km)	- MAGE	(leld)	Dane	firM m)	(X	/	1 dags
70 4	3 000	-38 741		0 000		-36 000	0.0	,	0.031
757.	2 250	-23.741		0.000		_12 667	0.0	0.0	-0.03
607	1 500	-9 741		0.000		-0 487	0.0	0.2	-0.00
7.308	0.760	6.741		0.000		-0.467	0.0	0.2	0.00
rt. 3	0.000	21.259		0.000		-3.876	0.0	0.0	0.01
	_	Shear Force (km) -38.741 -23.741 -8.741 6.259 21.259					-		
GAXIDUM -	-ve Be:	nding Moment	-36	.423 ki	i.m at	1.063m	from	joint 3	
		SINATION 1							
Boniti	an (m)	Shear Porce			No. of	Manana			
from	End 1	-40.975 -15.975 9.025 34.025	water	(kg)	2600	A PRINCE	CX (TO)	dy	210b
10 5	4 000	-40 975		0 000		0.000	()	(100)	(neg
751.	3 000	-15 075		0.000		20 475	0.0	0.0	0.08
501	2 000	-13.975		9.000		20.9/3	0.0	-1.3	0.05
2.302	1 000	9.025		0.000		31.931	0.0	-1.7	-0.01
		59.025							-0.038
aximum +	ve Ben	ding Moment ding Moment	33.	580 kM	.m at	2.361m	from	joint 4	









بعد الانتهاء من حل الكمرة المستمرة وعليها حمل ميت فقط سنعيدالحل باضافة حمل حى وتعديل ابعاد الكمرة والاحمال المؤثرة عليها وذلك باستخدام شاشة (Disk utilities)

ـ نضغط [٣] فتطهر الشاشة التالية:

O Exit from Utilities

- 1 Format a New data disk
- 2 Rename a previous job
- 3 Duplicate a previous job
- 4 Delete Selected jobs
- 5 Transfer Selected Jobs from the Fixed disk to a Floppy Data Disk
- 6 Copy Selected Jobs from a Floppy Data Disk to the Fixed Disk

نضغط [٣] مرة أخري لننشئ نسخة أخري من الكمرة الستمرة (3 Duplicate a previous job)

وندخل رقم الكمرة المستمرة (Beam) في قائمة المنشئت الموجودة بالشاشة وهو (١) مثلا .

نكتب \ ثم نضغط (Enter) لإدخال .

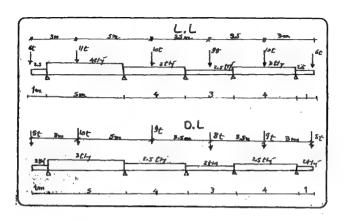
يظَهُرَ الْفَرَشُرُ فَى اسْفَلُ الشَّاشَةَ جِهَةَ اليَّمِينُ لاَنْخَالُ الاَسْمُ الْجَدِيدُ النَّسْخَةَ الأَخْرى مِنْ الكَمْرَةُ السَّتَمْرَةُ وَلِيكِنْ (Beam 1) ثم نَصْبَغُطُ [Enter] للاِنْخَالُ وسَنْجَرَى بِمِضْ التعديلات على الكَمْرَةُ المُسْتَمْرَةُ وهِي:

١ اضافة كابولي من الجهتين ،

٢. تفير الاحمال الميته (Dead load) كما بالرسم .

اله أضافة أحمال حية (Live load) كما بالرسم .

عد تعديل قطاع الكمرة وليكن T-sec عديل



نضط [۲] لاستدعاه منشا تم ادخال بیاناته وسنجری بعض التعدیلات علیه فتظهر

List of Jobs on disk 29.5Kb Disk space free

Job 1 - BEAM

Job 2 - BEAM1

Continue Previous Job

Which Job No. 2 <

نجيب على السؤال الموجود اسفل الشاشة برقم المنشأ المطلوب تعديله وهو (Beaml) ورقمه [٢] . فتطهرالشاشة التالية :

Current job reference = BEAM1

- 0 Exit from this job
- 1 Revise job data
- 2 Analysis / Results
- D Draw the structure, Deflections, moments & forces

ـ نضغط [١] لاستدعاء بيانات المنشأ والتعديل فيها (Revise job data) فتظهر الشاشة التألة:

Current job reference = BEAMI

- 0 End this job
- 1 Joint positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member loads
- 7 Joint loads
- 8 Combinations
- 9 Analysis / Results
- D Draw the structure

ولاضافة الكابولي من الجهتين نضيف النقطتين ٦ ، ٧ لنقاط المنشأ واحداثياتهما كالاتي:

Jt	х	у
6	-1	0
7	17	0

ـ نضغط [١] نقاط المنشأ (I Joint positions)

- نضغط [F10] الوصول إلى النقطة رقم (٦) وندخل احداثياتها ونكرر ذلك مع النقطة [V] فتصيح الشاشة بالصورة التالية:

Joint positi	ons		
Jt X coo	rd Y coord		
No. (m)	(m)		
1 0.000	0.000		
2 5.000	0.000		
3 9.000	0.000		
4 12.000	0.000		
5 16.000	0.000		
6 -1.000	0.000		
7 17.000	0.000		
8 0.000			

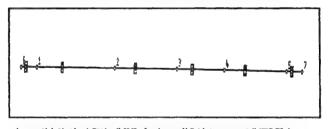
نضغط [ESC] للتسجيل ونضغط [٢] لاضافة الاعضاء [٥] ، [٦] كالاتي:

Member	E1	Jt. con	E2	Jt.con
5	6	F	1	F
6	5	F	7	F

نضغط [F10] للوصول إلى العضورةم [٥] ندخل البيانات كما بالجدول ونكرر ذلك العضورةم [٦] فتصبح الشاشة بالصورة التالية :

Me	mbe	r lo	cation ar	nd fixity						
Mer	n Jl	. Jnt	XICoord	YlCoord	J2 .	Jnt X	2Coord Y	2Coord	Length	Slope
No	no.	con	(m)	(m)	no.	con	(m)	(m)	(m)	(deg)
1	1	F	0.000	0.000	2	F	5.000	0.000	5.000	0.000
2	2	F	5.000	0.000	3	F	9.000	0.000	4.000	0.000
3	3	F	9.000	0.000	4	F	12.000	0.000	3.000	0.000
4	4	F	12.000	0.000	5	F	16.000	0.000	4.000	0.000
5	6	F	-1.000	0.000	1	F	0.000	0.000	1.000	0.000
6	5	F	16.000	0.000	7	F	17.000	0.000	1.000	0.000
7	0									

نضغط [ESC] التسجيل والتلك من صحة احداثيات النقط المضافة [3] ، [7] ، [7] التلك من ضغط [D] (Number) (F4) للتلك من محدة ترقيم نقاط واعضاء الكبرة بعد التعديل ثم [F5] (Both) فتظهر الشاشة التالية :



نضغط [ESC] للخروج من شاشة الرسومات ثم [Y] للمواققة على انهائها للاستمرار فى ادخال البيانات نضغط [١] ثم [٣] لتعديل قطاح الكسرة إلى T-Sec بدلا من مستطيل ابعاده ٢٥ سم × ٤٠ سم . نضغط (Command) [F9] ثم (Sections) [F6] فيتحرك للؤشر لاعلى بالضغط على (Command) [F9] نضغط (Top) [F6] ثمنغط (Elements) ثم (Section) كما بالجدول:

Element No	Y	В	D
1	100	1000	200
2	-250	250	500

نضغط [Enter] للإدخال ثم [Esc] لتسجيل عناصر القطاع (١) فتظهرالشاشة التالية:

Table o	of Section	ns Men	nber Se	ction	Pr	operties					
Section	Area	Inertia	No.of	Men	n	Member		No.	Sec.	Modulus	Ė
No	(cm2)	(cm4)	Elemer	nts 1	No.	Length	N/P	Seg	No.	(N.mm2)	
1 10	000.000	133333.3	3 0	1	l	5.000	P	1	1	21000.0	00
2	0.000				2	4.000	P	1	1	21000.0	00
					3	3.000	P	1	1	21000.0	0
					4	4.000	P	1	1	21000.00	00
					5	1.000	P				

Elements of Section no . 1

Elem Y-dim B-dim D-dim

No. (mm) (mm) No Section properties for Member 5

1 100.000 1000.000 200.000

2 -250.000 250.000 500.000

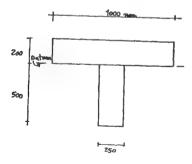
3 0.000<

ثم الشاشة التالية :

Table of Sect								
Section Area	Inertia	No. of	Mei	n Membe	T.	No.	Sec.	Modulus E
No. (cm2)	(cm4)	Elements	No.	Length	N/p	Seg	No.	(N/mm2)
1 3250.000	1269391	.03 2	1	5.000	P	1	1	21000.000
2 0.000			2	4.000	P	1	1	21000.000
			3	3.000	P	1	1	21000.000
			4	4.000	P	1	1	21000.000
			5	1.000	P	1	1	21000.000
			6	1.000	P	1	1	21000.000

ويالحظ أن المساحة أصبحت ٢٢٥٠ سم٢ وعزم القصورالذاتي ١٣٦٩٣٩ سم٤ والقطاع مكون من عنصرين (No of Elements = 2) .

 نضغط [F9] ثم [F6] الإنتقال إلى خصائص قطاع الكمرة في الجزء الاعلى من الشاشة جهة اليمين .



- * نضغط [F6] لتحريك المؤشر إلى قمة البيانات .
- * نضغط [Enter] عدة مرات لان الاعضاء لها نفس رقم القطاع وهو (١) في جمول القطاعات (Table of sections) .
 - * نضيف قطاع العضوين رقم ٥ ، ١وهو قطاع رقم (١) ايضا .
 - * نضغط [ESC] للتسجيل فتظهر الشاشة الرئيسية كما سبق .
 - * ويلاحظ لايوجد أي تعديل في الركائز Supports .
- * نضغط [٥] اسماء الاحمال (Load case names) لاضافة الحمل الحي (Live load) المنطقة الحمل الحي (Live Ld1) المؤثر علي كال عضو علي حدة فمثلا العضو الأول عليه (Live Ld1) ... والثاني (Live Ld2) ... والثاني (Live Ld2) ...

No. Load Case Name 1 Dead Load 2 Live Load 1 3 Live Load 2 4 Live Load 3 5 Live Load 4 6 Live Load 5 7 Live Load 6 8

- * نضغط [ESC] للتسجيل والعودة للشاشة الرئيسية ،
- * نضغط [٦] الاحمال المؤثرة علي اعضاء المنشأ (6 Member Loads) فتظهر الشاشة التالية :

MEMBER LOADS Mem No. of No. Loads 1 1 2 1

3 1

4 1

5 0

6 0

نضغط [F9] (Input) الموجودة في أسفل الشاشة وتعدل بيانات العضو رقم (١)
 كالاتي:

* نَصْغُط [F8] (Down) لِتَصْيِفُ الْأَحْمَالِ التَّالِيَّةِ:

Ld.	Load case	Ld	Stant	loaded	Start	End
No	number & name	type	pos	len	val	val
2	1 Dead load	PV	2		100	
3	2 Live load 1	UV			40	
4	2 Live load 1	PV	2		110	

^{*} ويالاحظ أن البعد ٢ متر من النهاية الاولى (E1) للعضو الاول .

^{*} نضغط [ESC] التسجيل ثم (N) لعدم نقل تلك الاحمال لاى عضو أخر . فتظهر الشاشة التالية:

```
MEMBER LOADS Loads & moments on Member 1 (length=5,000m slope = 0.000deg)
                                 Start Loaded (KN, KN,m or KN/m)
Mem No.of Ld Load case
                           Load
No. Loads No. Number & name Type Pos(m) Len(m) Start val. End val.
1
               1
                  Dead Load UV
                                              30,000
2

    Dead Load PV

                                  2.000
                                             100,000
3 1 3 2 Live Load 1 UV
                                              40,000
4 1 4 2 Live Load1 PV 2.000
                                             110,000
5
   0 5
              2
     n
```

Transfer loads to other Mmebers ? Y/N

* نَصْغُط [F9] (input) وتدخّل بيانات العضو الثاني وهي :

MEM	BER LO	ADS L	oads &	moments on l	Мен	iber 2	(longth	=4.000m slope = 0.000deg
Mem	No.of L	d Load	case	Load	Star	t Loss	ied (KN, KN.m or KN/m)
No.	Loads N	io. Num	ber & 1	ате Туре	Por	s(m)	Len(m) Start val. End val.
1	A	1	1	Dead Load		UV		25.000
2	1	2	1	Dead Load		PV	2.000	90.000
3	1	3	3	Live Load	2	UV		30.000
4	1	4	3	live Load 2	2	PV	2.000	100.000
5	0	5	3<					
6	0							

[•] نضغط [ESC] التسجيل ثم [N] لعدم نقل تلك الاحمال لاي عضو أخر.

^{*} نضغط [F9] (Input) وندخل بيانات العضو الثالث وهي :

				moments on Me	mber 3			-
Men	n No.of	Ld	Load case	1	Load	Start Loaded (K	N, KN.m o	r KN/m)
No.	Loads	No.	Number &	name	Туре	Pos(m) Len(m)	Start val.	End val.
1	4	1	1	Dead Load	UV		20.000	
2	4	2	1	Dead Load	PV	1.500	80.000	
3	1	3	4	Live Load3	UV		25.000	
4	1	4	4	Live Load3	PV	1.500	90.000	
5	0	5	4					
6	0							

- * نضغط (ESc) ثم (N) لزوم نقل تلك الأحمال لأي عضو أخر
 - * تضغط [F9] (Input) وتدخل بيانات العضو الرابع وهي :

BER L	OADS	S Loads & r	noments on M	Sembe	r 4 (leng	gth=4.000m	slope = 0.000	Odeg)
No.of	Ld	Load case		Load	Start	Loaded	(KN, KN.m	or KN/m
oads	No.	Number &	name	Туре	Pos(m) Len(m	Start val.	End val.
4	1	1	Dead Load	d (JV		25.000	
4	2	1	Dead Load	d I	V 2	2.000	90.000	
4	3	5	Live Load	4 L	JV		30.000	
1	4	5	Live Load	14 F	V 2	000.5	100.000	
0	5	4						
0								
	No.of Loads 4 4 4 1	No.of Ld Loads No. 4 1 4 2 4 3 1 4 0 5	No.of Ld Load case Loads No. Number & 4 1 1 4 2 1 4 3 5 1 4 5 0 5 4	No.of Ld Load case Loads No. Number & name 4 1 1 Dead Load 4 2 1 Dead Load 4 3 5 Live Load 1 4 5 Live Load 0 5 4	No.of Ld Load case	No.of Ld Load case	No.of Ld Load case	4 2 1 Dead Load PV 2.000 90.000 4 3 5 Live Load4 UV 30.000 1 4 5 Live Load4 PV 2.000 100.000 0 5 4

- * نضغط [ESC] للتسجيل ثم [N] لعدم نقل تلك الاحمال لاي عضو آخر.
 - * نضغط [F9] (input) وتدخل بيانات العضو الخامس وهي:

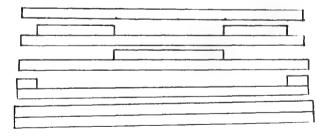
	MEM	BER LO	ADS	Loads &	moments on	Mem	iber:	5 (length=1.	000m slope = 0.0	00deg)
	Mem	No.of	Ld	Load ca	ise	Loa	d	Start Load	ded (KN, KN.m	or KN/m)
	No.	Loads	No.	Number	& name	Туј	ре	Pos(m) Le	n(m) Start val.	End val.
	1	4	1	1	Dead Loa	d l	J۷		20.000)
	2	4	2	1	Dead Loa	d F	Pγ	0.000	50.000)
	3	4	3	6	Live Load	15 U	JV		25.000)
	4	4	4	6	Live Load	15	PV	0.000	60.000	
ı	5	0	5	2						
	6	0								

- نضعط [ESC] للتسجيل ثم [N] لعدم نقل تلك الأحمال لاي عضو أخر
- نضفط [F9] (Input) ونعضل بيانات العضو السادس والأخير وهي :

of id.	oad case				
		:	load star	t loaded (KN, K	N.m or KN/m)
s No.	Number	r & name	Type Po	s (m) Len (m) Sta	rt Val. End val.
1	Ł	Dead Load	υv		20,000
2	1	Dead Load	PV	1.000	50.000
3	7	Live Load6	UV		25,000
4	7	Live Loads	PV	1.000	60.000
5	7				
	1 2 3 4	1 l 2 1 3 7 4 7	1 ! Deaf Land 2 1 Deaf Load 3 7 Live Load6 4 7 Live Load6	1 t Dent Lund UV 2 1 Dent Load PV 3 7 Live Load6 UV 4 7 Live Load6 PV	1 t Dent Land UV 2 1 Dent Load PV 1.000 3 7 Live Load6 UV 4 7 Live Load6 PV 1.000

⁻ نضغط (ESC) التسجيل والخروج الشاشة الرئيسية .

ويعد ذلك يمكن تعريف هالات التحميل للكمرة (DL + LL) ونفترض أن عددها خمسة كما باارسم .



- نضغط [٨] حالات التحميل (Combinaions) فتظهر الشاشة التالية :

Safety Factors for combination

Load Case Safety

Number and name Factor

Start a new set of Combinations Y/N (Y Erases all previous combinations)

نضغط [Y] لتسجيل حالات التحميل الجديدة والغاء الحالات السابقة فيظهر
 المؤشر اسفل الشاشة وندخل عدد حالات التحميل = غمسة فتظهر الشاشة التالية :

Safety	Factors for Con	mbination 1
Load (Case	Safety
Numb	er and name	Factor
1	Dead Load	1.000
2	Live Load 1	0.000
3	Live Load 2	0.000
4	Live Load 3	0.000
5	Live Load 4	0.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

يوجد العنوان بالسطر الأول وهو عامل الأمان لحالة التحميل الأولى (Safety Factors For Combination 1)

والسطر الثاني به رقم الحمل واسمه (Load case number and name) وعامل الأمان (Safety factor) . وحالة التحميل الأولى (Comb1) من الرسم السابق هى (Dead Load) فقط ندخل عامل الأمان = ١ أى ١٠٠ ٪ من قيمة الحمل السابق والمؤثر على كل الأعضاء ولعدم وجود أحمال حيه نترك باقى القيم = صغر .

وهي (Comb 2) ثم [F9] لايخال بيانات حالة التحميل الثانية (F6) ثم أي (DL X 1 + LL1 X 1 + LL4 X 1)

- يظهر المؤشر في أعلى الشاشة وندخل القيمة = \ ثم (Enter) للإدخال وندخل نفس القيمة الحمل الحي الأول (LL.1) .

ِ - نَصْغَطُ [F8] مرتين الوصول إلى السطر الشامس وندخل القيمة = ١ ثم (Enter) للانتقال لحالة العمل الحي الرابع (LLA) .

تظهر الشاشة في الصورة التالية :

Safety	y Factors for Con	mbination 2
Load	Case	Safety
Numb	per and name	Factor
1	Dead Load	1.000
2	Live Load 1	1.000
3	Live Load 2	0.000
4	Live Load 3	0.000
5	Live Load 4	1.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

[:] نضغط [F9] ثم (Comb 3) لادخال بيانات حالة التحميل الثالثة (F6) ثم (DL X 1+LL2 X 1+LL3 X 1

تظهر الشاشة في الصورة التالية :

Safety	Factors for Cor	nbination 3
Load	Case	Safety
Numb	er and name	Factor
1	Dead Load	1.000
2	Live Load 1	0.000
3	Live Load 2	1.000
4	Live Load 3	1.000
5	Live Load 4	0.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

- نكرر ما سبق مع حالة التعميل الرابعة (Comb 4) وهي : (DL X 1 + LL5 X 1 + LL6 X 1)

فتظهر الشاشة في المبورة التالية

Safety Factors for	Combination	4
Load Case	Safety	
Number and name	Factor	
1 Dead Lo	ad 1.000-	0<
2 Live Load	0.000	0
3 Live Load	0.000	0
4 Live Load	0.000	0
5 Live Load	0.000	0
6 Live Load	5 1.000	0
7 Live Load	5 1.000	0

وأخيرا مع حالة التحميل الخامسة (Comb 5) وهي : (DL X I + LL1 X I + LL2 X I+ LL3 X I+ LL4 X I+LL5 X I+LL6 X I)

فتظهر الشاشة في الصورة التالية :

Safety	Factors for Cor	nbination 5
Load	Case	Safety
Numb	per and name	Factor
1	Dead Load	1.000
2	Live Load 1	1.000
3	Live Load 2	1.000
4	Live Load 3	1.000
5	Live Load 4	1.000
6	Live Load 5	1.000
7	Live Load 6	1.000

⁻⁻ نضغط [Esc] لتسجيل حالات التصيل كلها فتظهر الشاشة الرئيسية .

⁻ تضغط [٩] ثم [٢] للبدء في الحل .

⁻ تظهر بيانات ونتائج المنشأ كالاتي .

Joint	positions		
Jt.	X coord	Y	coord
No.	(m)		(m)
1	0.000		0.000
28	5.000		0.000
3	9.000		0.000
4	12-000		0.000
5	16.000		8.000
6	-1.000		0.000
7	17.000		0.000

F1 Help	Cal			Top		?7 Jp	F8 Down	r Command	F10 Bottom E	ESC Scape	NUMLOCK is ON
Member											
Mem Jl.	Jnt	X1	Coord	Y1	Coord	J2.	Jnt	X2 Coord	Y2 Coor	d Length	Slope
No. no.	COR		(m)		(m)	DO.	con	(m)	(m)	(m)	(deg)
1 1	< P		0.000		0.000	2	P	5.000	0.00	0 5.000	0.000
2 2	P		5.000		0.000	3		9.000	0.00	0 4.000	0.000
3 3	P		9.000		0.000	Ä	P	12.000	0.00		0.000
4 4	P		12.000		0.000	5	F	16.000	0.00		0.000
5 6			-1.000		0.000	1	ř	0.600	0.00		0.000
6 5	P		16.000		0.000	7	P	17.000	0.00		0.000

F1	F2	F6	F7	P8	F9	F10	ESC	HUMLOCK
Relp	Calc	Top	Up	Down	Commod	Bottom	Escape	is ON
Table of Section	Sections Area	Inertia	No. c£					

No.	(cm2)	(cm4)	Elements
1	3250.000	1269391.03	2
2			

Elements of Section po. 1
Elem Y-dim B-dim D-dim
No. (mm) (mm) (mm)
1 100.000 1000.000 200.000
2 -250.000 250.000 500.000

Input mode

F1 Help	F2 Calc	F6 Top	ք7 Մք	P8 Down	F9 Commad	F10 Bottom	Esca Esca		is ON
Table of Section No. 1 2	of Sections Area (cm2) 3250.000 0.000	Inertia (cm4) 1269391.03	No. of Element 2	Me: 8 190	Hemi Length 4.3.3.4.5.1.	tion Property N/P .000 P .000	No.	Sec.	Modulus E (N/mm2) 21000.000 21000.000 21000.000 21000.000 21000.000

	Fl elp		P2 alc	•	F6 Top	F7 Up	P8 Down	P9 Commind	F10 Bottom	ESC Escape	NUMLOCK is ON
	Jnt Pos	×	Restraint (kN/mm)	¥	Rest:		A Restr				
1	1		PULL		(11217	FULL	(ZERO			
2	2		ZERO			FULL		ZERO			
3	3		ZÉRO			PULL		ZERO			
- 6	- 4		ZERO			FULL		SERO			
5	5		ZERO			FULL		ZERO			

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
Dead Load
Load
Live load 1
Live load 2
Live load 3
Live load 4
Live load 5
Live load 5
Live load 6

Input mode

F8 F9 F10 ESC Down Command Bottom Escape F1 F2 F6 27 NUMLOCK Help Calc Top Up is ON Safety Pactors for Combination 1 Load Case Safety Number and name factor Dead Load 1.000< live load 1 live load 2 live load 3 2 0.000 3 0.000 0.000 ŝ live load 4 0.000 6 live load 5 live load 6 0.000 0.000

Load Ca	F2 Calc Pactors for Conse and name Dead Load live load 1 live load 2 live load 3 live load 4 live load 6	F6 Top Safety factor 1.000 0.000 0.000 1.000 0.000	F7 Up 2	F8 Down	F9 Command	FIO Bottom	ESC Escape	NUMLOCK im ON
Load Ca	F2 Calc	F6 Top mbination Safety factor 1.000 0.000 1.000 0.000 0.000		På Down	F9 Commod	F10 Bottom	ESC Escape	NUMLOCK is ON
Input F1 Help	mode F2 Calc	P6 Top	F7 Up	P8 Down	P9 Comund	F10 Bottom	ESC Bacape	NUMLOCK in on

Safety	Pactors for	Combination	- 4
Load Co	ase	Safety	
Number	and name	factor	
1	Dead Los		
2	live load		
3	live load	2 0.000	
4	live load	3 0.000	
5	live load	4 0.000	
6	live load		
7	live load	5 1.000	

R.T.	F2	Fe	E /	L.a	1.9	LIO	ESC	NUMLOCK
Help	Calc	Top	Üр	Down	Commnd	Bottom	Escape	is ON
Load Ca	1.00	Combination Safety						
Fumber	and name	factor						
1	Dead Lo	ad 1.000						
2	live load	1 1.000						
3	live load	2 1.000						
4	live load							
5	live load	4 1.000						
6	live load	5 1.000						
7	live load	6 1.000						

	1 F2		P6	F7	F8	79	P10	ESC	MANAGE OF SE
He	lp Calc		Top	Up	Down	Command	Bottom	Escape	is ON
MEME	ER LOADS	Loads	& moment	a on H	ember 1	(lengt	h = 5.0	00m slope	= 0.000deg)
Hen	No.of	Ld.	Load case	1					m or kN/m)
No.	Loads	No.	Number &	name	Type	Pos(m)	Len(m)	Start val	. End val.
1	4	1	1	Dead	Load UV		٠, .	30.90	
2	4	2	1	Dead	Load PV	2.000	1	100.00	Ō
3	4	3			ad 1 UV			40.00	0
4	4	6	2 1	ive lo	ad 1 PV	2.000		110.00	Ó
5	4	5							

F1 Help	F2 Calc		FII Top	77 Up	F Do		P9 Commad	F10 Bottom	ESC Escape	NUMLCICK is ON
MEMBER	LOADS	Load	s & mom	ents on	Hembe	r 2	(lengt	h = 4.0	00m slo	pe = 0.000deg)
Nen	No.of	Ld.	Load ca	186		Load	Start	Loaded	i (kH,	kN.m or kN/m)
No.	Loads	No.	Number	& name		Type	Pos(m)	Len(m)	Start	val. End val.
1	4	1	1	Dea	d Load	UV			25	.000
2	4	2	1	Dea	d Load	PV	2.000	3	90	.000
3	4	3	3	live	load 2	UV			30	.000
4	4	4	3	live	load 2	PV	2.000)	100	.000
5	4	5								
6	4									

F1	12		F6	F7	F8	F9	F10	ESC	NUMBOCK
Help	Calc		Top	Up	Down	n Command	Bottom	Escape	is ON
KEKBEI	LOADS	Loads	& momen	ts on					= 0.000deg)
Hex	No.of	Ld.	Load cas	ie:	L	oed Star	t Loadec	i (kW, kM	.m or kN/m)
No.	Loads	No.	Number 4	лаже	T	ype Pos(m	Len(m)	Start val	. End val.
1	4	1	1	Dead	Load i	JV		20.00	0
2	4	2	1	Dead	Load	PV 1.50	0	80.00	0
3	4	3	5	live 1	oad 3 1	UV V		25.00	0
4	4	4	4	live 1	load 3 i	PV 1.50	0	90.00	0
5	4	5							
6	4								

r1	F2		F6	177	F	1	F9	F10	ESC	NUMLOCK
Help	Calc		Top	űр	Dos	m	Commad	Bottom	Escape	is ON
MEMBER	LOADS	Load	6 mome	nts on	Henber	- 4	flengt	h = 4.6	00m slc	pe = 0.000deg).
Hom B	io.of	Ld.	Load ca	86						kN.m or kN/m }
No. I	oads.	Mo.	Mumber	5 name	1	'voe	Pos(a)	Len(m	Start	val. End val.
1	4	1	1<		Load					.000
2	4	2	1	Dead	Load	PV	2.000)	90	-000
3	4	3	5	live l	oad 4	UV			30	.000
4	4	- 4	5	live 1	oad 4	PV	2.000	1	100	.000
5	4	5								
6	4									

Input mode

F1 Helg	P2 Calc		F6 Top	P7 Up	Do		F9	F10 Bottom	RSC Escape	NUNLOCK im on
Hem	LOADS Ho.of Loads 4 4 4 4	Ld.	Load ca	A name Dead Dead Live	1	Load Type P UV PV UV	Start	Loaded Len(m)	(kar. !	000

Fl	E3	P6	F7	71	29	F10	ESC	NUNLOCK

Helg	Calc	Тор	Up Down	Command Bottom Escape	is ON
MEMBER Mem No.	No.of Loads	Loads & moments Ld. Load case No. Number & r	Load	(length = 1.000m slop I Start Loaded (kN, Pos(m) Len(m) Start v	kN.m or kN/m)
1 2 3	4	2 1	Dead Load UV Dead Load PV ve load 6 UV	1.000 20 50	.000 .000
4 5			ive load 6 PV		.000
6	•				

F1 Help	F2 Calc	F6 Top	P7 Up			n				lot		ESC Escape			NUMLOCK is ON
*															BEAKI
•													DATE	E a	
:			,	т	ш	P	u ·	T	D	A 1	P A		SARET		1
*															

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FRAME GEOMETRY

Mo. of Joints = 7

MEHBERS	
: End 1 Details:	End 2 Details:
Mem:Jt.:C: X coord : Y coord :Jt.:	C: X Coord : Y Coord : Length : Slope
No.:no.:: (m): (m):no.:	
::::	-;;;;;
1: 1:F: 0.000 : 0.000 : 2:	F: 5.000: 0.000: 5.000: 0.00
2: 2:P: 5.000 : 0.000 : 3:	F: 9.000 : 0.000 : 4.000 : 0.00
3: 3:F: 9.000 : 0.000 : 4:	F: 12.000 : 0.000 : 3.000 : 0.00
4: 4:F: 12.000 : 0.000 : 5:	F: 16.000: 0.000: 4.000: 0.00
5: 6:F: -1.000 : 0.000 : 1:	F: 0.000: 0.000: 1.000: 0.00
6: 5:F: 16.000 : 0.000 : 7:	F: 17.000 : 0.000 : 1.000 : 0.00

TABLE OF SECTIONS

Sect	ion	8	Area:	Inertia:	Rec	tangular	Elements	(if specified)
Numb;	er	1	(cm2):	(cm4):	No:	D (mm):	B (max)	: Y (man)
		- 8 -	:		\$:
1	l	ε	3250.00:	1269391.0:	L:	200.00	1000.00	100.00
				2	2:	500.00	250.00	: -250.00
		- 2 -	:		:			:

SUMMARY OF MEMBER PROPERTIES

Member 1 - 6 PRISMATIC : Section Number 1 : Hodulum E = 21000.0 N/mm2

SUPPORTS

No. of Supports = 5

Humber	8	(kH/sus	1 8	(kH/ma	3 *	ngular Restra (kW.m/radia	an)
	- 1 -		3		1		
1		FULL	2	PULL	8	ZERO	
2		ZERO		PULL	1	ZERO	
3	8	ZERO		FULL	3	EERO	
4	:	SERO	8	PULL	1	ZERO	
5	1	EHRO		PULL	2	ZERO	

APPLIED LOADS AND HOMENTS

REMOVE I

LOAD	CASE :LOAD:	POSITIO	M : LOAD/HONENT
No : Want			Length: Start Value: End Value
	t:		
1:	Dead Load: UV :		
1:	** : PV :	2.000 m :	s 100.000 kW s
2:	live load 1: UV :		s 40.000 kN/m:
2:	'' 1 PV :	2.000 m :	: 110.000 kW :

*		*			* JOB : BEAM1	
*						
					* DATE:	
		*			*	
			IMPU	TDATA	*SHEET: 2	
*						
* AMALVER	(C)Copyright	Computer an	d Design	Services Limited	1 1985	

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APPLIED LOADS AND MOMENTS continued

HEMBER J

No : Name		:Type:	Start: Len		/alue: End Value
		-::		:	
1:	Dend Load	1: UV :	1	: 25.000	kN/m:
1:		: PV : 2.	000 m :	: 90.000	kN :
31	live load :	2: UV :	3	: 30.000	kN/m:
3:	* *	: PV : 2.	000 m :	: 100.000	kN z

MEMBER 3

LOAD CASE	:LOAD: P O	SITION	ILOAD/	HOHENT
No : Name		Start: Leng		
:	-::	~~~~~ E ~~~~~~	:	!
1: Dead Lose	d: UV :	2	: 20.000	kH/m:

```
'' : PV : 1.500 m : : 80.000 kM :
live load 3: UV : : : 25.000 kM/m:
'' : PV : 1.500 m : : 90.000 kM :
 1 -
 4: live load 3: UV:
LOAD CASE :LOAD: POSITION : LOAD / NOMENT
           :Type: Start: Length: Start Value: End Value
No : Name
 1: Dead Load: UV: : 25.000 N/m: 1: '.' : PV: 2.000 m: : 90.000 N/m: 5: live load 4: UV: : : 10.000 N/m: 5: '' : PV: 2.000 m: : 100.000 N/m:
MEMBER 5
LOAD CASE :LOAD: POSITION : LOAD / NOMENT
No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 20.000 kN/m:
1: '': PV: 0.000 m: : 50.000 kN/m:
6: live load 5: UV: : : 25.000 kN/m:
6: '': PV: 0.000 m: : 60.000 kN/m:
______
HERRER 6
LOAD CASE :LOAD: POSITION : LOAD / NOMENT
No: Name :Type: Start: Length: Start Value: End Value
* JOB : BEAN1
                                                      * DATE:
                                                      *----
                              IMPUT DATA
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COMBINATIONS
                 : TABULATED VALUES OF PARTIAL SAFETY FACTORS
LOAD CASE : Combination Number
No: Name : 1 : 2 : 3 : 4 : 5
1: Dead Load:1.000:1.000:1.000:1.000:1.000
      Dead Load 1: 1:000: : 1.000
live load 1: 1:000: :1.000
live load 2: : :1.000: :1.000
live load 3: : :1.000: :1.000
live load 4: :1.000: : :1.000
live load 5: : : 1.000: 1.000
 2:
  3:
  4:
  5:
 6:
      live load 6: :
                           8
```

						* JOE		
			- 			* DA1		
						*		
			BAMALV	SIS RES	ULTS	*SHE	T z	4
AMALYSE	(C)Copyr	ight Compu	ter and Desi	gn Services	Limited	1985		
ESULTS FOR								
oint Displ	acements	and React	ions					
Joint No.	dx(mm) 0.00	dy(mm) 0.00	0(rad) -0.0004	Px (kN) 0.000	Py (М	(kW.m) 0.000
2	0.00	0.00	0.0001	0.000	242.			0.000
3	0.00	0.00	0.0000	0.000	137.			0.000
4	0.00	0.00	-0.0001	0.000		052		0.000
5	0.00	0.00	0.0001	0.000	162.	721		0.000
6	0.00	0.35	-0.0003					
7	0.00	0.04	0.0000					
ummation o	f Porces	and Momen	ts					
		Px (k#)	Py (kH)	Ho (kN.m.)				
tember Load	8	0.000	-910.000	-7155.000				
oist Loads		0.000	0.000	0.000				
leactions		0.000	-910.000	-7155.000				
ummation		0.000	910.000					
42011				7155.000				
		0.000	0.000					
Summation	COMBINA	0.000						
Summation RESULTS FOR Toint Displ		0.000 TION 2	0.000					
Summation RESULTS FOR Toint Displ	acements	0.000 TIOM 2 and React	0.000 ions	0.000				
ESULTS FOR Coint Displ	acements dx(mm)	0.000 TIOM 2 and React dy(mm)	0.000 ions 0(rad)	0.000 Px (kH)	Py ((kN)		(kN.m)
ESULTS FOR Foint Displ	acements dx(mm) 0.00	0.000 TION 2 and React dy(mm) 0.00	0.000 ions 0(rad) -0.0014	9.000 Px (kH) 0.000	331.	472		0.000
ESULTS FOR Coint Displ Joint No.	dx(mm) 0.00 0.00	0.000 TIOM 2 and React dy(mm) 0.00 0.00	0.000 ions 0(rad) -0.0014 0.0007	0.000 Px (kH) 0.000 0.000	331. 460.	.472 .817		0.000
ESULTS FOR Coint Displ	acements dx(mm) 0.00	0.000 TION 2 and React dy(mm) 0.00	0.000 ions 0(rad) -0.0014	0.000 Px (kM) 0.000 0.000	331. 460. 41.	472 817 027	н	0.000
Summation UESULTS FOR Foint Displ Joint No. 1 2 3	dx(mm) 0.00 0.00 0.00	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00	0.000 ions 0(rad) -0.0014 0.0007 0.0000	0.000 Px (kH) 0.000 0.000	331. 460. 41. 356.	.472 .817	м	0.000
Joint No.	dx(mm) 0.00 0.00 0.00 0.00	0.000 FIOR 2 and React dy(mm) 0.00 0.00 0.00	0.000 ions 0(rad) -0.0014 0.0007 0.0000	0.000 Px (kM) 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	м	0.000
Summation DESULTS FOR Foint Displ Joint No. 1 2 3 4 5	dx(mm) 0.00 0.00 0.00 0.00 0.00	0.000 TIOM 2 and React dy(mm) 0.00 0.00 0.00 0.00	0.000 ions 0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006	0.000 Px (kM) 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	н	(kN.m) 0.000 0.000 0.000 0.000
Summation UESULTS FOR Foint Displ Joint No. 1 2 3 4 5 6 7	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 ions 0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	0.000 Px (kM) 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	H	0.000
dummation ESULTS FOR Coint Displ Joint No. 1 2 3 4 5 6 7	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 1.38 0.49 and Homen	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	0.000 Px (kM) 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	м	0.000
Jummation RESULTS FOR Foint Displ Joint No. 1 2 3 4 5 6 7	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	0.000 Px (RM) 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	м	0.000
Aummation LESUITS FOR Foint Displ Joint No. 1 2 3 4 5 6 7 Aummation of tember Load	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 1.38 0.49 and Homen	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005 tts	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	M	0.000
Summation Display Joint No. 1 2 3 4 5 6 7 Summation o	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49 and Homen Px (km) 0.000	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	0.000 Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	M	0.000
Summation UESULTS FOR Foint Displ Joint No. 1 2 3 4 5 6 7 Summation of tember Loads Reactions	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momen Px (km) 0.00 0.00 0.00	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005 tas Py (ks) -1440.000 0.000	0.000 Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	H	0.000
Summation RESULTS FOR Toint Displ Joint No. 1 2 3 4 5 6	dx(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 TION 2 and React dy(mm) 0.00 0.00 0.00 1.38 0.49 and Homen Px (ks) 0.000 0.000	0.000 (rad) -0.0014 0.0007 0.00003 0.0003 0.0005 tts Py (km) -1440.000 -1440.000	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356.	.472 .817 .027	M	0.000
ummation ESULTS FOR foint Displ Joint No. 1 2 3 4 5 6 7 ummation o	accounts dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TIOM 2 and React dy(sm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momen 0.000 0.000 0.000 0.000 0.000	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0005 ts Py (km) -1440.000 0.000 0.000	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 411 356 250	.472 817 .027 .318 .365		0.000 0.000 0.000 0.000 0.000
Nummation UESULTS FOR foint Displ Joint No. 1 2 3 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	accounts dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TIOM 2 and React dy(sm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momen 0.000 0.000 0.000 0.000 0.000	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0005 ts Py (km) -1440.000 0.000 0.000	0.000 Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 411 356 250	.472 .817 .027 .318 .365		0.000 0.000 0.000 0.000 0.000
Nummation UESULTS FOR foint Displ Joint No. 1 2 3 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	accounts dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TIOM 2 and React dy(sm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momen 0.000 0.000 0.000 0.000 0.000	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0005 ts Py (km) -1440.000 0.000 0.000	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 411 356 250	472 817 027 318 365		0.000 0.000 0.000 0.000 0.000
Nummation UESULTS FOR foint Displ Joint No. 1 2 3 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	accounts dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TIOM 2 and React dy(sm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momen 0.000 0.000 0.000 0.000 0.000	0.000 (rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0005 ts Py (km) -1440.000 0.000 0.000	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 411 356 250	472 817 027 318 365	B : 1	0.000 0.000 0.000 0.000 0.000
Jummation RESULTS FOR Joint Displ Joint Mo. 1 2 3 4 5 6 7 7 Summation o	accounts dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	0.000 TION 2 and React dy(sm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.000 (rad) 0(rad) 0.001 0.001 0.000 0.000 0.0000 0.0005 Py (ks) -1440.000 0.000 0.000	Px (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 41 356 250	* JO	B:I	0.000 0.000 0.000 0.000 0.000

RESULTS FOR COMBINATION 3

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kH)	M (kN.m)
1	0.00	0.00	-0.0003	0.000	184.492	0.000
2	0.00	0.00	-0.0001	0.000	345.408	0.000
3	0.00	0.00	0.0001	0.000	372.899	0.000
4	0.00	0.00	0.0000	0.000	232.714	0.000
5	0.00	0.00	0.0001	0.000	159.488	0.000
6	0.00	0.23	-0.0002			
7	0.00	0.01	0.0000			

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kM) -1295.000 0.000	Mo (kN.m) -10427.500 0.600
Reactions	0.000	-1295.000	-10427.500
Summation	0.000	1295.000	10427.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 4

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (mm)	0(rad)	Px (kH)	Py (kH)	8 (kH.m)
1	0.00	0.00	0.0000	0.000	296.211	0.000
2	0.00	0.00	0.0001	0.000	214.841	0.000
3	0.00	0.00	0.0000	0.000	157.713	0.000
4	0.00	0.00	0.0000	0.000	139.598	0.000
5	0.00	0.00	-0.0002	0.000	271.638	0.000
6	0.00	-0.12	0.0002			
7	0.00	-0.35	-0.0004			

Summation of Forces and Moments

	Px (kN)	Py (kH)	Ho (kH.m)	
Member Loads	0.000	-1080.000	-8515.000	
Joint Loads	0.000	0.000	0.000	
Reactions	0.000	-1080.000	-8515.000	
Summation	0.000	1080.000	8515.000	
Summation	0.000	0.000	0.000	

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RESULTS FOR COMBINATION 5

Joint Displacements and Reactions

Joint Wo. 1 2 3 4 5	dx(mm) 0.00 0.00 0.00 0.00 0.00	dy(mm) 0.00 0.00 0.00 0.00 0.00 0.79	0(rad) -0.0009 0.0003 0.0001 -0.0002 0.0002	Px (kN) 0.000 0.000 0.000 0.000	Py (kN) 427.826 536.247 296.351 378.526 356.049	M (kM.m) 0.000 0.000 0.000 0.000 0.000

Summation of Forces and Moments

	Px (kH)	Py (kH)	Mo (kH.m)	
Member Loads	0.000	-1995.000	-15587.500	
Joint Loads	0.000	0.000	0.000	
Reactions	0.000	-1995.000	-15587.500	
Summetion	0.000	1995.000	15587.500	
Summation	0.000	0.000	0.000	

Maxima for Hember 1

	Shear (kH)	Maximum Axi			ending Hom	ent (kN.m)	>
Comb.	(Abs. Max.) (Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-127.826	0.000	0.000	124.349		-124.129	5.000
2	-298.526	0.000	0.000	322.943	2.000	-257.642	5.000
3	-135.508	0.000	0.000	108.984	2.000	-162.541	5.000
4	141.211	0.000	0.000	89.921	2.000	-132.500	0.000
5	-287.174	0.000	0.000	273.151	2.000	-273.371	5.000

Maxima for Hember 2

	Shear (kN)	Maximum Axi					
COMP.	(ADE. MEX.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	114.583		0.000	55.038		-124.129	0.000
2	162.289	0.000	0.000	26.871	2.892	-257.642	0.000
3	209.900	0.000	0.000	147.259	2.000	-162.541	0.000
4	106.051	0.000	0.000	60.656	2.000	-101.447	0.000
5	249.073	0.000	0.000	114.775	2.000	-273.371	0.000

Maxima for Hember 3

Load	Shear (XW)	Maximum Axi	al (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.) (Co	ompression)	(Tension)	Hax.+ve	Pos. (m)	Maxve	Pos. (m)
1	-77.773	0.000	0.000	25.045	1.500	-69.115	3.000
3	-126.684	0.000	0.000	15.946	0.666	-158.539	3.000
3	172.798	0.000	0.000	65.630	1.500	-142.942	0.000
4	73.764	0.000	0.000	30.905	1.500	-57.241	0.000
5	-169.575	0.000	0.000	55.433	1.500	-148.305	3.000

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					******		*****
Maxim	a for Member	4					
	mb 41 ms						
Load	(Abs. Hax.)(Maximum Axi	tal (kW) <-	Вел	ding Mome		
1	97.279	0.000				Maxve	Pos. (m)
ż	229.635	0.000		75.442	2.000	-69.115	0.000
3			0.000	190.731	2.000	-158.539	
4	100.512	0.009	0.000	68.976 50.776	2.000	-82.048	
5	-116.638	0.000	0.000	50.776	2.000	-132.500	
	208.951	0.000		159.598	2.000	-148.305	
Maxim	n for Member						
Load	Shear (kH)	Maximum Ax:	ial OWn e-	Ber	ding Mana	ne (bW m)	>
	(Abs. Max.) (Compression)	(Tension) N	lay Awa 1	orna (m)	Maxve	
1	-70.000	0.000	0.000		0.000	-60.000	
2	-70.000	0.000	0.000	0.000		-60.000	
3	-70.000	0.000	0.000		0.000		
ă.	-155.000	0.000	0.000				
5	-155.000	0.000	0.000	0.000	0.000	-132.500	
							2.000
	a for Hember						
Load	Shear (kH)	Hazimum Ax	Lal (kii) <-	Ber	ding Home	at (kH.m)	>
Comb.	(Abs. Hax.)(Compression)	(Tension) #	lax. +ve E	Os. (m)	Maxve	
1	70.000	0.000	0.000	0.000		-60.000	
2	70.000	0.000	0.000	0.000	0.000	-60.000	0.000
3	70.000	0.000	0.000	0.000	1.000	-60.000	0.000
4	155.000	0.000	0.000	0.000	1.000	-132.500	0.000
5	155.000	0.000	0.000	0.000	0.000	-132.500	0.000
RESUL'	RESULTS FOR COMBINATION 1 MEMBER 1						
	ition (m) Sh	ear Force A:	tial Comp. (kN)	Bend-Homes (kH.a			Slope
Jt. 2		-127.826	0.000	-124.12			(deg) 0.008
0.751		-90.326	0.000	12.21			
0.50%		-52.826	0.000	101.68			
0.25L		84.674	0.000	69.28			
Jt. 1	0.000	122.174	0.000	-60.00			-0.022 -0.024
			0.000	-80.00	0.0	0.0	-0.024
Maxim	nm +ve Bendin	g Moment	124.349 km.	mat 2	000m from	ioint 1	
Maxim	um -ve Bendin		-124.129 km.				

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		opyright Comp							
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RESULTS	FOR COM	BINATION 1	MEMBER	2					
Posit:	ion (=)			Comp.	Bend . Mome	nt.	dπ	dy	Slope
from	End 1	(kH)		(kN)		m) (#	m) (mm)	(deg)
Jt. 3	4.000	-75.417 -50.417		0.000	-45.7	96 0	.0	0.0	0.003
0.75L	3.000	-50.417		0.000			.0 -	0.1	0.005
D.50L	2.000	64.583		0.000	55.0	38 0	.0 -	0.1	-0.003
	1.000			0.000	-22.0	45 0	.0	0.0	-0.007
Jt. 2	0.000	114.583		0.000	-124.1	29 0	-0	0.0	0.008
Mawi	Aug Bon	dine House	66	030 W	an at 2	000m fr	om inint	. ,	
May I man	-ve Ben	ding Moment ding Moment	-124	.129 h	0.m at 0	-000m fr	om ioint	,	
RESULTS	POR COM	BINATION 1	HENBER	3					
Posit	ion (m)	Shear Force	Arial	Comp.	Bend . Home	mt	dz	dy	Slope
fro	m End 1	(3eW)		(kH)		m) (m	m) (mm)	(deg)
Jt. 4	3.000	-77.773 -62.773		0.000	-69.1	15 0	.0		-0.005
0.75L	2.250	-62.773		0.000	-16.4	10 0	. 0		0.001
0.50L	1.500	-47.773		0.000		45 0	-0	0.0	0.001
	0.750			0.000				0.0	-0.001
Jt. 3	0.000	62.227		0.000	-45.7	96 0	.0	0.0	0.003
Maximum	-we Ben	ding Noment	25	.045 ki	Lo at I	.500m fr	om ioint		
Maximum	-ve Ber	ding Moment	-69	.115 k	l.m at 3	.000m fr	om joint	3	
		BINATION 1							
Posit	ion (m)	Shear Force	Avial	Comp.	Bend . Home	mt .	dx	dv	Slope
		(kil)			(kii.	=1 /=	m) (mm.)	(deg)
Jt. 5	4.060	-92.721		0.020	-60.0	ian a	.ó `	0.0	0.007
0.75%	3.000	-67,721		0.000	20.2	21 0		0.2	
0.50L	2.000	47,279		0.000	75.4	42 0	.0 -	0.3	
0.25L	1.000	72,279		0.000	15.6	64 0			-0.011
Jt. 4	0.000	-67.721 47.279 72.279 97.279		0.000	-69.1	15 0			-0.005
Maximum	+ve Ber	ding Moment	75	.442 N	f.m at 2	.000m fr	om joint	4	
Maximum	-ve Ber	ding Moment ding Moment	-69	.115 k	d.m at 0	.000m fr	om joint	4	
RESULTS	POR COM	BINATION 1	HENBER	5					
Bosit	ion (=)	Shear Force	And al		Bood Mone		4		-1
LOBIC	TON (M)	GREET LOLCA	water	comp.	Bend - Nome	INT.	dx	dу	Slope

from	End I	(kn)	(JcH)	(kM.m)	(mm)	(mm)	(deg)
Jt. 1	1.000	-70.000	0.000	-60.000	0.0	0.0	-0.024
0.75L	0.750	-65.000	0.000	-43.125	0.0	0-1	-0.021
0.5%	0.500	-60.000	0.000	-27.500	0.0	0.2	-0.020
0.25L	0.250	-55.000	0.000	-13.125	0.0	0.3	-0.019
Jt. 6	0.000	-50.000	0-000	0.000	0.0	0 - 4	-0.018
	ve Bending		0.000 kN.m				
	-ve Bending	Homenc	-60.000 kM.m	at 1.000m	rrom	joint 6	

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RESULTS	FOR COM	BINATION 1	MEMBER	6				
Positi	ion (m)	Shear Force	Axial	Comp.	Bend . Home	st dx	dy	Slope
	a End 1	(101)		(kH)	(kH .:		(mm)	(deg)
Jt. 7		50.000		0.000				0.000
0.75L	0.750	55.000		0.000	-13.1		0.0	0.001
0.50L	0.500	60.000		0.000		0.0	0.0	
0.25%		65.000		0.000				
Jt. 5	0.000	70.000		0.000	-69.0	0.0	0.0	0.007
Mavinum	ève Ben	ding Nament		nno ke	n at 1	com from	ioint 5	
Maximum	-ve Ber	ding Moment ding Moment	-60	.000 ks	mat 0	.000m from	igint 5	
		**********					********	
RESULTS	FOR CON	BINATION 2	MEMBER	-				
	ion (m)		Axial					Slope
	a End 1			(kW)				
Jt. 2	5.000	-298.528		0.000				
0.75L	3.750			0.000				
0.50L	1.250	-123.528 173.972		0.000	269.9	29 0.0		
0.25L Jt. 1	1.230	261.472		0.000		52 0.0		
JC. 1	0.000	261.472		0.000	-60.0	0.0	0.0	-0.083
Maximum	+ve Ber	ding Moment	122	943 68	. m at 2	.000m from	ioint 1	
Maximum	-ve Ber	ding Moment	-257	.642 kb	.m at 5	.000m from	joint 1	
RESULTS	FOR CON	BINATION 2	MEMBER	2				
	ion (m)			Comp.	Bend . Home	nt dx	dy	Slope
	n End 1			(kH)	(lon-			
Jt. 3				0.000	11.5			
0.75L	3.000	-2.711		0.000	26.7		0.0	-0.005
0.50%	2.000			0.000	16.9	36 0.0		
0.25L		137.289		0.000	-107.8	53 0.0		
Jt. 2	0.000	162.289		0.000	-257.6	42 0.0	0.0	0.039

Maximum +ve Bo	ending Moment ending Moment	26.	871 kH	.m at	2.892m	from	joint	2	
Maximum -ve Bo	ending Moment	-257	642 kN	.m at	0.000m	from	joint	2	
RESULTS FOR C	OMBINATION 2	MEMBER	3						
Position (m) Shear Force	Axial	Comp.	Bend . Mow	ment			ly	Slope
from End	1 (kN)	(kil)	(lcb	(.m)		(ma		
	0 -126.68		0.000	-158.	539	0.0			-0-018
	0 -111.68		0.000	-69.		0.0		.1	
	0 -96.68	4	0.000	8.	.987	0.0		.1	
0.25L 0.75	0 -1.68	6	0.000	15.	875	0.0		.0	
Jt. 3 0.00	0 13.31	6	0.000	11.	.513	0.0	0	.0	0.000
Maximum +ve B	ending Moment	15	.946 kN	.m at	0.666m	from	joint	3	
Marinum -ve B	ending Moment	-158	.539 kN	.m at	3.000m	from	joint	3	
							* JOB	: BE	AM1
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* * * * * * * * * * * * *	C)Copyright Co	* A N mputer a MEMBER	A L Y	S I S R	E S U	L T S	* JOB * DATE * *SHEET	: BE	10 Slope
ANALYSE (C RESULTS FOR C Position (s from End	COMPUTATION 2 A) Shear Force 1	* A N mputer a MEMBER e Axial	A L Y nd Desi 4 Comp. (kit)	S I S R	ESU ces Lim	L T S	* JOB * DATE * SHEET 1985	: BE	10 Slope (deg)
* ANALYSE (C	COMPUTATION 2 A) Shear Force 1	* A N mputer a MEMBER e Axial	A L Y nd Desi 4 Comp. (kN)	S I S R ign Servic Bend No (k)	ESU ces Lim ment N.m)	L T S	* JOB * DATE * SHEET 1985	dy	10 Slope (deg)
* ANALYSE (C RESULTS FOR C From End Jt. 5 %.00 0.75L 3.00	Copyright Commination 2 Shear Force 1 (km of 180.36 (km o	* A N *** ** ** ** ** ** ** ** **	A L Y nd Desi 4 Comp. (kN)	S I S R ign Servic Bend No (k)	ESU ces Lim ment N.m)	L T S	* JOB * DATE * SHEET 1985	dy	\$10pe (deg) 0.032 0.028
* ANALYSE (C RESULTS FOR C From End Jt. 5 %.00 0.75L 3.00	Copyright Commination 2 Shear Force 1 (km of 180.36 (km o	* A N *** ** ** ** ** ** ** ** **	A L Y nd Desi 4 Comp. (kM) 0.000 0.000	S I S R ign Servic Bend Mo (k -60 92 190	ESU ment N.m) .000 .731	L T S	* JOB * DATE * SHEET 1985 (m 0	: BE	\$10pe (deg) 0.032 0.028
* ANALYSE (C	2)Copyright Co COMBINATION 2 a) Shear Forc 1 (km 10 -180.5 10 119.63	*A Numputer a MEMBER e Axial	A L Y nd Desi 4 Comp. (kN) 0.000 0.000 0.000	S I S R ign Servic Bend Mo (k -60 92 190	E S U ces Lim ment N.m) .000 .865 .731	L T S	* JO8 * DATE * SHEET 1985 (m 0 -0	dy m)	Slope (deg) 0.032 0.028 -0.004

		Bending Bending			190.7 -158.5			2.000m 0.000m		
							 	 	 	 -
DECIT TO	WOR	COMBINIS	PTOM	2	MEMBER	5				

Position (m) She from End 1 Jt. 1 1.000 0.75L 0.750 0.50L 0.500 0.25L 0.250 Jt. 6 0.000	ar Force (kM) -70.000 -65.000 -60.000 -55.000	Axial Comp. Be (kH) 0.000 0.000 0.000 0.000 0.000 0.000	end.Homent (kN.m) -60.000 -43.125 -27.500 -13.125 0.000	dx (mm) 0.0 0.0 0.0	dy (mm) 0.0 0.4 0.7 1.0	Slope (deg) -0.083 -0.080 -0.078 -0.077
Maximum +ve Bending		0.000 kN.m				-0.0//

Maximum -ve Bending Moment -60.000 kN.m at 1.000m from joint 6

RESULTS FOR COMBINATION 2 MEMBER 6

Position (m) Shear Force Axial Comp. Bend.Homent dx dy Slope from End 1 (kN) (kN) (kN.m) (mm) (deg)

Jt. 7 1.000 50.0	0.000	0.000 0.0	0.5.0	.026
0.75L 0.750 55.0	0.000	-13.125 0.0	0.4 0	027
0.50L 0.500 60.0	0.000	-27.500 6.0	0.3 0	.028
0.25L 0.250 65.0 Jt. 5 0.000 70.0	000.000	-43.125 0.0	0.1 0	.030
Jt. 5 0.000 70.0	0.000	0.000 0.0 -13.125 0.0 -27.500 0.0 -43.125 0.0 -60.000 0.0	0.0 0	.032
Maximum +ve Bending Momen Maximum -ve Bending Momen	nt 0.000 kN-1	m at 0.000m from	joint 5 joint 5	
RESULTS FOR COMBINATION				
		Bend. Homent dx (kM.m) (mm) -162.541 0.0 -16.593 0.0 82.480 0.0 59.677 0.0 -60.000 0.7		
Position (m) Shear Por	rce Axial Comp.	Bend.Homent di	dy s	Tobe
from End 1 (1) Jt. 2 5.000 -135. 0.75L 3.750 -98. 0.50L 2.500 -60. 0.25L 1.250 76.	LON (ACM)	-162 543 O C	(0.0 -0	005
0 757. 3 750 _08	108 0.000	-16 593 0.0	-0.0 -0	.018
0.501. 2.500 -60	508 0.000	82 480 0.0	-0.5 0	008
0.251. 1.250 76	202 0.000	59 677 0 0	-0.4 -0	016
Jt. 1 0.000 114.	192 0.000	-60.000 0.3	0.0 -0	-017
Maximum +ve Bending Momen Haximum -ve Bending Momen	nt 108.984 kM.	m at 2.000m from	joint 1	
MAXIMUM -Ve BelloIng Home				
	************		* JOB : BEAR	
•			· DATE:	
•	:		· DATE:	
:	• A H A L Y S	IS RESULT:	* DATE:	1
* AMALYSE (C)Copyright	* ANALYS	IS RESULT:	* DATE: **SHEET: 1	1
* ARALYSE (C)Copyright	* A N A L Y S	IS RESULT:	* DATE: **SHEET: 1	1
* AMALYSE (C)Copyright RESULTS FOR COMBINATION	* A N A L Y S Computer and Design	IS RESULT:	• DATE: • SHEET: 1	1
* AMALYSE (C)Copyright RESULTS FOR COMBINATION	* A N A L Y S Computer and Design	IS RESULT:	• DATE: • SHEET: 1	1
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* AMALYSE (C)Copyright RESULTS FOR COMBINATION	* A N A L Y S Computer and Design	IS RESULT:	• DATE: • SHEET: 1	1
** ** AMALYSE (C)Copyright ** AMALYSE (C)Copyright ** RESULTS FOR COMBINATION **Position (m) Shear For From End 1 (* A N A L Y S Computer and Design 3 MEMBER 2 Cree Axial Comp. 100 0.000 100 0.000 900 0.000 900 0.000	1 8 R 2 S U L T : n Services Limited (kH.m) (mm -142.942 0 29.652 0 147.259 0 19.659 0162.541 0	ODATE: S *SHEET: 1 1985 (ms) (ms) (0 -0.3 (0 -0.5 (0 -0.3 (0 -0.5 (1
** ** AMALYSE (C)Copyright ** AMALYSE (C)Copyright ** RESULTS FOR COMBINATION **Position (m) Shear For From End 1 (* A N A L Y S Computer and Design 3 MEMBER 2 Cree Axial Comp. 100 0.000 100 0.000 900 0.000 900 0.000	1 8 R 2 S U L T : n Services Limited (kH.m) (mm -142.942 0 29.652 0 147.259 0 19.659 0162.541 0	ODATE: S *SHEET: 1 1985 (ms) (ms) (0 -0.3 (0 -0.5 (0 -0.3 (0 -0.5 (1
- AMALYSE (C)Copyright - Position (m) Shear Foo - from End 1	* A N A L Y S Computer and Design 3 MEMBER 2 roce Axial Comp. (H) (Mi) 100 0.000 100 0.000 100 0.000 100 0.000 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	Rend Homent d. (km.m) (m.m.) (km.m) (m.m.) (km.m) (m.m.) (* OATE: * SHEET: 1 1985 * dy 5 (mm) (mm) (0 0 0.0 (0 1 0.3 (0 0 0.0 (0 1 0.1 (0 1 0	ilope deg 0.008 0.019 0.001 0.020 0.020
** ** AMALYSE (C)Copyright ** AMALYSE (C)Copyright ** RESULTS FOR COMBINATION **Position (m) Shear For From End 1 (*A N A L Y S Computer and Design 3 MEMBER 2 Ket (ME) 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000 100 0.000	Rend Homent d. (km.m) (m.m.) (km.m) (m.m.) (km.m) (m.m.) (* OATE: * SHEET: 1 1985 * dy 5 (mm) (mm) (0 0 0.0 (0 1 0.3 (0 0 0.0 (0 1 0.1 (0 1 0	ilope deg 0.008 0.019 0.001 0.020 0.020
* *AMALYSE (C)COPYTight RESULTS FOR COMBINATION Position (m) Sheer For from End 1 71. 3 4.000 -200. 0.7512 3.000 -145. 0.301 2.000 99. 0.2512 1.000 154. 71. 2 0.000 209. Maximum -ve Bending Home Maximum -ve Bending Home	*A N A L Y S Computer and Design 3 MEMBER 2 LONG 0.000 LONG 0.000 0.000 0.000 0.000 0.000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	Rend. Homent dr. (km.m) (mm - 142.942 0.129.558 0.119.359 0.119.359 0.129.562.541 0.10 m at 2.000m from at 0.000m from	o DATE: 5 **SHEET: 1 1985 (dy 8 (mm) (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(lope deg) .009 .019 .001 .020
* AMALYSE (C)Copyright RESULTS FOR COMBINATION Position (m) Shear For from End 1 Jr. 3 4.000 -2.00 0.751 3.000 -145. 0.301 2.000 93. 0.251 1.000 154. Jt. 2 0.000 93. Maximum +ve Bendling Mome Haximum -ve Bendling Mome RESULTS FOR COMBINATION Position (m) Shear For	* A N A L Y S Computer and Design 3 MEMBER 2 Free Axial Comp. (Hi) 0.000 100 0.000 900 0.000 147.259 km 162.541 km. 3 MEMBER 3	### RESULT: ###################################	* DATE: \$ **SHEET: 1 1985 * (mm) (ilope deg) .008 .019 .001 .020 .005
* AMALYSE (C)COPYIGHT RESULTS FOR COMBINATION POSITION (m) Shear FO from End 1 7. 1 4.000 -200. 0.751 3.000 -145. 0.301 2.000 99. 0.251 1.000 154. 7t. 2 0.000 99. Maximum +ve Bending Home Maximum -ve Bending Home Position (m) Shear Fo from End 1	*A N A L Y S Computer and Design 3 MEMBER 2 KH (MS) 100 0.000 100 0.000 900 0.000 900 0.000 147.259 kM- nt 147.259 kM- nt 152.541 kM 3 MEMBER 3 KEMBER 3 KEMBER 3	### RESULT: ###################################	* DATE: \$ **SHEET: 1 1985 * (mm) ((lope deg) (1008 (
* AMALYSE (C)COPYIGHT RESULTS FOR COMBINATION POSITION (m) Shear FO from End 1 7. 1 4.000 -200. 0.751 3.000 -145. 0.301 2.000 99. 0.251 1.000 154. 7t. 2 0.000 99. Maximum +ve Bending Home Maximum -ve Bending Home Position (m) Shear Fo from End 1	*A N A L Y S Computer and Design 3 MEMBER 2 KH (MS) 100 0.000 100 0.000 900 0.000 900 0.000 147.259 kM- nt 147.259 kM- nt 152.541 kM 3 MEMBER 3 KEMBER 3 KEMBER 3	### RESULT: ###################################	* DATE: \$ **SHEET: 1 1985 * (mm) ((lope deg) (0.008 (0.008 (0.009 (0.000) (0.000) (0.000)
* AMALYSE (C)COPYTight ***RESULTS FOR COMBINATION **Position (a) Shear Forence and 1 **Trans End 1	*A N A L Y S Computer and Design 3 MEMBER 2 KH (MS) 100 0.000 100 0.000 900 0.000 900 0.000 147.259 kM- nt 147.259 kM- nt 152.541 kM 3 MEMBER 3 KEMBER 3 KEMBER 3	### RESULT: ###################################	* DATE: \$ **SHEET: 1 1985 * (mm) ((lope deg)
* AMALYSE (C)COPYTight ***RESULTS FOR COMBINATION **Position (a) Shear Forence and 1 **Trans End 1	*A N A L Y S Computer and Design 3 MEMBER 2 Free Axial Comp. (H) 0.000 100 0.000 900 0.000 900 0.000 nt 147.259 km 147.259 km 1 -152.541 km 3 MEMBER 3 Free Axial Comp. (K)	Rend Homent d. (kW.m) (mm at 2.000m from at 0.000m from at 0.000m from at 0.447 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630	* DATE: \$ **SHEET: 1 1985 * dy 8 (um) (0 -0.3 (0 -0.5 -0 (0 -0.3 (0 -0.5 -0 (0 -0.3 (0 -0.5	11 10pe deg) 1.008 1.019 1.020 1.020 1.005
** ** ** ** ** ** ** ** ** ** ** ** **	*A N A L Y S Computer and Design 3 MEMBER 2 Free Axial Comp. (H) 0.000 100 0.000 900 0.000 900 0.000 nt 147.259 km 147.259 km 1 -152.541 km 3 MEMBER 3 Free Axial Comp. (K)	Rend Homent d. (kW.m) (mm at 2.000m from at 0.000m from at 0.000m from at 0.447 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630	* DATE: 5 *SHEET: 1 1985 * (am) (ilope deg) .008 .019 .001 .020 .005
* AMALYSE (C)COPYTight RESULTS FOR COMBINATION Position (m) Shear FO from End 1 Jt. 3 4.000 -200. 0.75L 3.000 -145. 0.30L 2.000 99. 0.25L 1.000 154. Jt. 2 0.000 99. Maximum -ve Bending Home Maxi	*A N A L Y S Computer and Design 3 MEMBER 2 Free Axial Comp. (H) 0.000 100 0.000 900 0.000 900 0.000 nt 147.259 km 147.259 km 1 -152.541 km 3 MEMBER 3 Free Axial Comp. (K)	Rend Homent d. (kW.m) (mm at 2.000m from at 0.000m from at 0.000m from at 0.447 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630 0.465.630	* DATE: \$ **SHEET: 1 1985 *	ilope deg) .008 .019 .001 .020 .005

COMBINAT: (m) Shear d 1 0000 - 0000 - 0000 0000 1	EOM 3	MEMBER	4	*******			
(m) Shemi d 1 000 - 000 - 000	Force {kH} -89.488	Axial	-				
d 1 000 - 000 - 000	(kH) -89.488			Bend. Homent	dx	dv	Slope
000 - 000 - 000	-89.488		(1681)	(kH . m)	Columbia.	(mm)	(deg)
000 000 000			0.000	-60.000	0.0	0.0	0.005
000	-64.488		0.000	16.988	0.0	~0.1	0.009
000	50.512		0.000	68 976	0.0	-0.2	-0.001
100	75.512		0.000	5.964	0.0	-0.1	-0.009
	100.517		0.000	-92 048	0.0	0.0	-0.002
			0.000	-041040		0.0	-0.002
Bending I	Moment	68	976 km	m at 2.000m	from	foint 4	
Bending I	Homent	-82	OAR I'M	m at 0.000m	from	inint 4	
						,0200	
COMBINAT	ION 3	HEMBER	5				
(m) Shear	r Force	Avial	Como.	Bend . Moment	dv	dv	Slope
d 1	(km)		(kK)	(kH . m)	(mm)	(mm)	(deg)
000 .	-70.000		0.000	-60.000	0.0	0.0	-0.017
750	-65.000		0.000	-43.125	0.0	0.1	-0.017
500	-60.000		0.000	-27.500	0.0	0.1	-0.013
250	-55 000		0.000	-13 126	0.0	0.1	0.013
000	-50.000		0.000	0.000	0.0	0.2	-0.012
	-30.000		0.000	0.000	0.0	0.2	-0.011
Bondine I	Manage		000 14			1-1 5	
Bending i	Moment	- 0	-000 KB	-m at 0.000m	LITOR	Joine 6	
menorad i	MOSMBILL C	-60	-000 KM	.m at 1.000m	rrom	Joint 9	
						* 10E - P	PAM1
		*				* JOB : B	PAM1
						* JOB : B	EAM1
		-:				* JOB : B	EAM1
		. A B	A L Y	SIS PRSU	T. T S	* JOB : B	EAM1
(C)Copyric	ght Com	· A M	A L Y	SIS RESU	LTS	* JOB : B * DATE: *SHEET:	12
(C)Copyric	ght Com	· A M	A L Y	SIS RESU	LTS	* JOB : B * DATE: *SHEET:	12
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SIS RESU	L T S	* JOB : B * DATE: *SHEET:	EAM1
(C)Copyri	ght Com	* A M	ALY	SISRESU gn Services Lis Bead.Moment (kM.m) 0.000 -13.125 -27.500	dx (xm)	* JOB : B * DATE: *SHEET: 1985 dy (mm) 0.0 0.0	EAM1
(C)Copyris COMBINAT: (m) Shear d 1 00 750 500 250 000	ght Com ght Com (kN) 50.000 55.000 65.000 70.000	A B puter a	A L Y	gn Services Lis Bend. Moment (kH.m) 0.000 -13.125 -27.500 -43.125	dx (xm) 0.0 0.0 0.0 0.0	* JOB : B * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0	12 Slope (deg) -0.001 0.000 0.002 0.005
(C)Copyris COMBINAT: (m) Shear d 1 00 750 500 250 000	ght Com ght Com (kN) 50.000 55.000 65.000 70.000	A B puter a	A L Y	gn Services Lis Bend. Moment (kH.m) 0.000 -13.125 -27.500 -43.125	dx (xm) 0.0 0.0 0.0 0.0	* JOB : B * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0	12 Slope (deg) -0.001 0.000 0.002 0.005
(C)Copyris COMBINAT: (m) Shear d 1 000 750 500 000 Bending	ght Com	A MEMBER Axial	A L Y	gn Services Lis Bend. Moment (kH.m) 0.000 -13.125 -27.500 -43.125	dx (xm) 0.0 0.0 0.0 0.0	* JOB : B * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0	12 Slope (deg) -0.001 0.000 0.002 0.005
(C)Copyris COMBINAT: (m) Shear d 1 00 750 500 250 000	ght Com	A MEMBER Axial	A L Y	SISRESU gn Services Lis Bead.Moment (kM.m) 0.000 -13.125 -27.500	dx (xm) 0.0 0.0 0.0 0.0	* JOB : B * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0	12 Slope (deg) -0.001 0.000 0.002 0.005
(C)Copyrig	ght Com TON 3 r Force (kN) 50.000 55.000 60.000 65.000 70.000 Homent Homent	A MEMBER Axial	A L Y	SISRESU gn Services Lis Bend.Moment (kM.m) 0.000 -13.125 -27.500 -43.125 -60.000 .m at 1.000m	dx (am) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	* DATE: * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 joint 5 joint 5	Slope (deg) -0.001 -0.001 0.000 0.002
(C)Copyrig	ght Com TON 3 r Force (kN) 50.000 55.000 60.000 65.000 70.000 Homent Homent	A MEMBER Axial	A L Y	gn Services Lis Bend. Moment (kH.m) 0.000 -13.125 -27.500 -43.125	dx (am) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	* DATE: * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 joint 5 joint 5	\$1ope (deg) -0.001 -0.000 0.002 0.005
	COMBINAT (m) Shem d 1 000 750 500 250 000	(m) Shear Force d 1 (km) 000 -70.000 -65.000 550 -65.000 500 -55.000 000 -50.000	(m) Shear Force Axial (km) 000 -70.000 750 -65.000 500 -60.000 255 -55.000	COMBINATION 3 MEMBER 5 (m) Shear Force (kik) 01 (kik) 000 -70.000 0.000 750 -65.000 0.000 500 -60.000 0.000 225 -55.000 0.000 000 -50.000 0.000	(m) Shear Force Axial Comp. (kN m) (k	(m) Shear Force Axial Comp. Bend.Noment (kN.m) (m) (cm) (cm) (cm) (cm) (cm) (cm) (cm	Bending Moment

Maximum -ve Bending Moment -142.942 kM.m at 0.000m from joint 3

.75L	3.750	-	71.289		0.00			1.103	0.0	-0	٠,3	0.015
	2.500		33.789		0.00	10		6.777				-0.016
	1.250		03.711		0.00	10		0.576	0.0			
t. 1	0.000	1.	41.211		0.00	90	-13	2.500	0.0	0	.0	-0.002
aximum aximum	tve Ber	ding M	oment oment	89 -132	.921	kN.m	at at	2.000 0.000	m from	joint	1	
	FOR COR											
Name in 1	(-)	Chan-	P	Autol	-		and t	ioment (kN-m) 57.241 14.208 60.656 -7.895	du		do	Slope
POSICI	CON (M)	Stiegt	LOTGE	WATER	(10	in Di	SIICI - 0	(b) -1	(- (10	-,	Idea
Troi	4 000		(10.0)		0.0	20	- 1	2 241	,—,		- á	0.00
367	3.000	-	50 040		0.0	00		14 200	0.0	-0	1	0.00
	3.000	-	66 053		0.0	00	- 2	60 666	0.0	-0	. 2	-0.00
7.302	2.000		20.021		0.0	00		7 995	0.0	-0	1	-0.00
1.236	1.000	,	06 061		0.0	00	- 1	01.447	0.0	-0		0.00
E. 2	3.000	1	06.051		0.0	UU	-10	01.447	0.0	۰	- 10	0.00
Taximum	+ve Ber	nding H	oment	60	-656	lcbi . m	3A	2.000	m from	joint	2	
taximum	-ve Ber	ding M	loment.	-101	.447	kW.m	at	0.000	m from	joint	- 2	
Posit: from t. 4 .75L .50L .25L	ion (m) m End 1 3.000 2.250 1.500 0.750	Shear - -	Force (kW) 66.236 51.236 43.764 58.764 73.764	Axial	0.0 0.0 0.0 0.0	P. B H) 00 00 00 00	end -	Moment (kN.m) 45.948 -1.896 30.905 -7.543 57.241	dx (mm) 0.0 0.0 0.0	(=	dy (-0) (-0) (-0)	8lop (deg) -0.00) 0.00 0.00 0.00
mumina	+ve Be	nding N	loment.	30	.905	kH.m	at	0.000	m from	joint	3	į
WK7MGB	-ve se	naing P	oment	-3/	.241	KH.N	at.	0.000	Jm IIO	JOINE		
	######################################							*******	****			
• •												BEAM1
				*						* DATI		
				" A h			1 S					13

*					* JOB : B	BAM1
*	*				* DATE:	
	* A	NALYS	I S RESUI	TS		13
* AMALYSE (C)Copyr	ight Computer	and Design	Services Limi	ted 1	985	
RESULTS FOR COMBINA	TION 4 NEMBE	R 4				****
Position (m) She			end. Moment	dx	dy	Slope
from End 1	(3:10)	(Jdf)	(kH.m)	(mm)	(mm)	
Jt. 5 4.000		0.000	-132.500	0.0	0.0	-0.011
0.75L 3.000	-91.638	0.000	-28.362	0.0	9.0	0.006
0.50L 2.000	-66.638	0.000	50.776	0.0	-0.I	0.003
0.25L 1.000	48.362	0.000	14.914	0.0	-0.1	-0.004
Jt. 4 0.000	73.362	0.000	-45.948	0.0	0.0	-0.002
Maximum +ve Bending	Moment 5	0.776 kM.m	at 2.000m	from	joint 4	
Maximum -ve Bending	Moment -13	2.500 kM.m	at 4.000m	from	joint 4	

ESULTS	FOR COM	BINATION 4	MEMBER	5					
Bositi	on (m)	Shear Force	Awinl	COMP.	Bend. No	ment	dx	dy	Slope
			nazuz	(kH)	()	cN.m)	(mm)		(deq)
t. 1	1.000	-155.000		0.000		2.500	0.0	0.0	-0.002
. 75%	0.750	-143.750		0.000		.156	0.0	0.0	0.004
.50L	0.500			0.000	-60	.625	0.0	0.0	0.008
.25L	0.250			0.000	-26	3.906	0.0	-0.1	0.010
t. 6	0.000	-110.000		0.000		0.000	0.0		0.01
	_		_				6	ioint 6	
laximum Laximum	-ve Ben	ding Moment	-132	.500 kN	.m at	1.000m	from	joint 6	
		BINATION 4							
Posit:	ion (m)	Shear Force		Comp.	Bend.M	oment kN.m.)	dx (==)		Slop (deg
froi	a End 1	(kH)		(kH)		0.000	0.0		
t. 7	1.000 0.750	110.000		0.000		8.906			-0.02
.75L	0.750	121-250					0.0	-0.1	
.50L	0.500			0.000		0.625			
1.25L	0.250			0.000		5-156	0.0	-0.1	
t. 5		155.000		0.000		2.500			-0.01
laximum	+ve Ben	ding Moment	0	.000 kH	I.m at	1.000=	from	joint 5	
Mumika	-ve Ben	ding Moment	-132	.500 kB	i.m at	0.000#	from	joint 5	
		BINATION 5							
Posit	ion (m)	Shear Force	Axial	COMD.	Bend.M	oment	dx	dy	Slop
	m End 1			(kN)		kN.ml	(mm)	(mm)	(deg
It. 2	5.000	-287.174				3.371	0.0		
.75L	3.750			0.000	3	0.909	0.0		
1.50L	2.500			0.000	22	5.814	0.0		0.01
0.25L				0.000		3.845	0.0		-0.04
/t. 1		272.826			-13		0.0		-0.05
		ding Moment	273	.151 kt	d.m at	2.000	from	joint 1	
eximum	+ve Ber								
taximum taximum	-ve Ber	iding Moment	-273	.371 ki	(.m at	5.0001	from	joint 1	
faximum faximum	-ve Ber	ding Moment	-273	.371 ki	N.m at	5.000	from	joint 1	
faximum faximum	+ve Ben	ding Noment	-273 	.371 ki	K.m at	5.000	from	joint 1	
		nding Moment			P 40-40 10-40-40-40-40				ME with wife fire fire
	********		*			******			BEAM1
	********					******		* JOB :	BEAM1
******	********		*			######################################	*****	* JOB :	BEAM1
			· A H	I A L Y	\$15	R E S U	LTS	* JOB : * DATE: *SHEET:	BEAM1
ANAL	arragas	Copyright Com	A M	A L Y	S 1 S	R E S U	L T S	* JOB : * DATE: *SHEET:	BEAM1
ANAL	TSE (C)(Copyright Com	A M	JALY	S 1 S	R E S U	L T S	* JOB : * DATE: * SHEET:	BEAM1
ANAL	TSE (C)(Copyright Com	A Member	A L Y	S 1 S ign Serv	RESU	L T S	* JOB : * DATE: *SHEET: 1985	BEAM1
ANAL RESULTS Posit	TSE (C)(Copyright Com	A M	I A L Y	S I S ign Serv	RESUices Li	LTS	* JOB : * DATE: * SHEET: 1985	BEAM1 14 Slop (dec
ANAL	TSE (C)(Copyright Com	* A N puter a MEMBER Axial	A L Y	S 1 S ign Serv	RESU	LTS aited dx (mm)	* JOB : * DATE: * SHEET: 1985	Slog (dec

0.50L 0.25L	1.000	139 194	.073		0.00	0	11 -5	4.775 1.798	0.0	-0 0	. 0	-0.006 -0.014
Jt. 2	0.000	249	.073		0.00	Ю	-27	3.371	0.0	0	.0	0.020
Maximum Maximum	tve Ben -ve Ben	ding Mom ding Mom	ent ent	114. -273	.775 .371	kN.m kN.m	at at	2.000m 0.000m	from from	joint joint	2	
RESULTS	FOR COM	BINATION	5	MEMBER	3							
Positi	ion (m)	Shear F	OFCE	Axial	Collig	. 8	end M	oment kw.m; 8.305 3.779 5.433 8.166 7.079	dx	-	dy	Slope
Jt. 4	3.000	-169	.575		0.00	ó	-14	8.305	0.0	ν,	. 6	-0.011
0.75L	2.250	-135	.825		0.00	10	~3	3.779	0.0	ō	-0	0.003
0.50L	1.500	-102	.075		0.00	10	5	5.433	0.0	0	-0	0.001
0.25L	0.750	101	.675		0.00	10	-	8.166	0.0	0	.0	-0.003
Jt. 3	0.000	135	.425		0.00	10	-9	7.079	0.0	0	.0	0.005
								1.500m 3.000m				
Nextmus.	-ve ben	aing Mom		-148	. 303	KH.2	at	3.000	XXOM	Jozac		
RESULTS	POR COM	BINATION	5	MEMBER	4							
Positi	lon (m)	Shear F	orce	Axial	Comp	. B	end.M	oment kN.m) 2.500 1.049 9.598 3.147	dx		dy	Slope
from	End 1		(kH)		(ki	i)	(kH.m)	(mm)	(=	=)	(deg)
Jt. S	4.000	-201	.049		0.00	10	-13	2.500	0.0	0	.0	0.013
0.75L	3.000	-146	.049		0.00	10	4	1.049	0.0	-0	-4	0.022
0.50L	2.000	98	.951		0.00	00	15	9.598	0.0	-0	. 6	-0.001
0.25L	1.000	153	.951		0.00	0	. 3	3.147	0.0	0	-3	-0.022
JE. 4	0.000	208	.951		0.00	10	-14	8.305	0.0	C	.0	-0.011
Maximum	+ve Ben	ding Hom	ent	159	.598	kH.m	at	2.000m 0.000m	from	joint	4	
Maximum	-ve Ben	ding Mom	ent	-148	. 305	kH.m	at	0.000m	from	joint	4	
RESULTS	FOR CON	BÎNATION	5	MEMBER	5							
Positi	ion (m)	Shear F	orce	Axial	Comp	ь. В	end.H	oment kH.m} 2.500 5.156 0.625 8.906 0.000	dπ		dv	Slope
from	End 1		(kW)		(ki	(1)	(kH.m}	(300)	(=	=)	(deg)
Jt. 1	1.000	-155	.000		0.00	10	-13	2.500	0.0	0	.0	-0.054
0.75%	0.750	-143	.750		0.00	10	-9	5.156	0.0	0	.2	-0.048
0.50L	0.500	-132	-500		0.00	10	-6	0.625	0.0	0	-4	-0.044
0.25L	0.250	~121	.250		0.00	ю	-2	8.906	0.0	0	. 6	-0.041
Jt. 6	0.000	-110	.000		0.00	10		0.000	0.0	0	-8	-0.041
Maximum	+ve Ben	ding Hom	ent	0	.000	kH.m	at	0.000m	from	ioint	6	
Maximum	-ve Ben	ding Hom	ent	-132	.500	kM.m	at	0.000m 1.000m	from	joint	6	

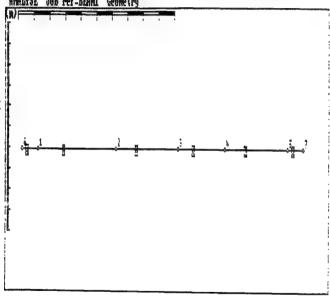
在2000年间的 1000年间 1000年间 1000年								
•			* JOB : BEAM1					
*	+							
•			* DATE:					
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*								
* ANALYSE (C)Convright C	nameter and De		1-1 1 100C					

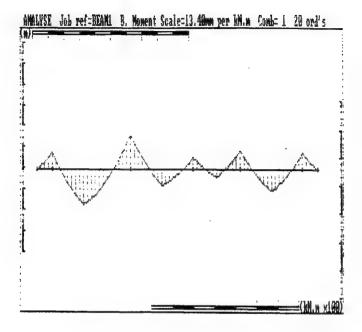
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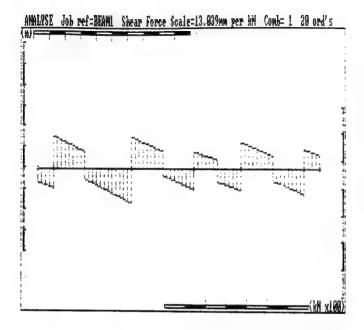
RESULTS FOR COMBINATION 5 MEMBER 6

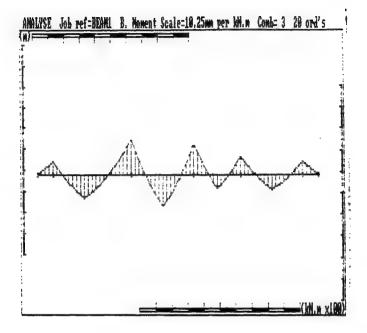
	on (m) 8 End 1	hear Zorce (kN)	Axial Comp. Be (kH)	end.Moment (kH.m)	dx (mm)	dy (mm)	Slope (deg)
Jt. 7	1.000	110.000	0.000	0.000	0.0	0.1	0.000
0.75L	0.750	121.250	0.000	-28.906	0.0	0.1	0.000
0.50L	0.500	132.500	0.000	-60.625	0.0	0.1	0.003
0.25L	0.250	143.750	0.000	-95.156	0.0	0.0	0.007
Jt. 5	0.000	155.000	0.000	-132.500	0.0	0.0	0.013
		ing Moment	0.000 kN.m ~132.500 kN.m				

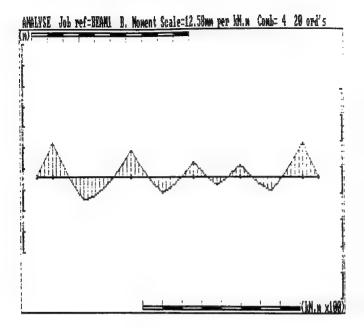
ANALYSE Job ref-BEAM! Geometry

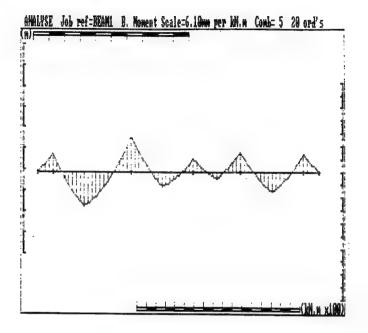












مثال : كما بالرسم كمرة مستمرة وعليها الاحمال المضحة بالرسم (١) .



- ندخل أحداثيات نقاط المنشأ وكذاك اعضائه وحالة الومملات والقطاعات والركائز

كالاتي:

Joint	X(m)	Y(m)
1	0.0	0.0
2	6.3	0.0
3	11.7	0.0
4	18.0	0.0

	Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con	
	1	1	F	2	F	
	2	2	F	3	F	
ĺ	3	3	F	4	F	

- قطاع الكمرة ثابت مقاس ٢٥ سم × ٥٠ سم .

Joint	Support	X Restraint	Y Restraint	A Restraint
1	Fixed	Full	Full	Full
2	Hinge	Full	Full	Zero
3	Hinge	Full	Full	Zero
4	Hinge	Full	Full	Zero

- ندخل اسماء الأحمال (Load case names)

1- Dead Load

- ندخل قيم الاحمال للؤثرة على الاعضاء

⁽١) مهندس /خليل ابراهيم واك (Design of Reinforced Concrete Beams) عن ٨٥٠.

UV		40.5 Kn/m
UV		21.3 Kn/m
PV	2.7m	109.6 Kn
UV		36.7 Kn/m
	UV PV	UV PV 2.7m

- ندخل حالات التحميل وهي واحدة

Dead Load: 1

- نضغط [٩] ثم [٢] للبدء في الحل فتظهر خطوات الحل تباعا على الشاشة .

- تظهر بيانات بنتائج المنشأ كالاتي :

Joint	positions	
Jt.	X coord	Y coord
No.	(m)	(=)
1	0.000	0.000
2	6.300	0.000
3	11.700	0.000
4	18.000	0.000
4		

F1 Help	F2 Calc	To	P7 Up	P8 Down	EW Commed	F10 Bottom	ESC Escape	NUMLICE is ON
Hem J1. Ho. no. 1 1 2 2	. Jnt X . con l F	on and fixit (1 Coord Y) (m) 0.000 6.300 11.700	nn . 2 3	10101	X2 Coord (m) 6.300 11.700 18.000	Y2 Coc (m) 0.0 0.0	(m) 00 6.300 00 5.400	\$lope (deg) 0.000 0.000

Fl Help	F2 Calc	P6 qoT		F8 Own Co	F9 F10 mmnd Bottom	Esc:		NUMEOCK is ON
Section No.	of Sections Area (cm2) 1250.000	Inertia (cm4) 260416.67	No. of Elements	Hem No.	Pr Section P Nember Length N/F 6.300 P	No.	Sec.	Modulus E (W/mm2) 21000.000 21000.000
2				2	5.400 P		1	21000.000

PlO ESC Bottom Escape	NUMELOCK is ON
	F10 ESC Bottom Escape

F <u>1</u>	P2	F6	F7	PS P	end	F10	ESC	NUMLOCK
Help	Calc	Top	Op	Down Com		Bottom	Recape	is ON
MEMBER LA	OADS	Loads & moments Ld. Load case	OB					= 0.000deg)

No.	Loads				Type Load UV	Pos(n)	Len(a)	Start val. 40.500	End val.
1	1	1	1	Dead	TOPG DA			40.300	
2	2	2							
3	1								

F1 Help	P2 Calc		P6 Top	F7 Up	F8 Down	P9 Commod 1	F10 Bottom	ESC Escape	NUMLOCK is ON
HERODIA Hom	R LOADS								pe = 0.000deg) kH.m or kH/m)
No.	Loads								val. End val.
1	1	1	1	Dead	Load UV			21	. 300
2	2	2	1	Dead	Load PV	2.700		109	. 600
3	1	3							

Pl	Calc	P6	P7	Pe	F9	F10	BSC	MANEOCK
Help		Top	0p	Down	Commad	Bottom	Secape	is ON
	HOADS Ho.of Loads	Loads & moments Ed. Load case No. Number & : 1 1 2		Load	Start Pos(m)	Loaded	(kH, k	M.m or kW/m) l. End val.

F1 Help	F2 Calc		F6		P7	FB	F9	e Pot	10 F	ESC	e	1	MUMILOCI
≏sseuse: uetħ	Calc	, 	TOP		esser.	DOWN	222224	Ameta N Doc	HERMET	-ap	~ #2842#2	**	
											* JOB :		
					FOR	DTERS					* DATE:		
,							UT	D A	TA		·SHEET:		
ANAL	YSE (C	C)Copyri	ght Co	mpute	er and	d Desi	gn Serv	ices	Limit	ed 1	985		
RARE G			223841	1928×1				3 - 4 -		2020	****	t in air	e=##=#:
NAME W	CUMETI	11											
lo. of .	Jointe	- 4											
EMBERS	P	nd 1 Deta				. Fo	d 2 Det	-11-					
		coord											
ю.:по.		(m)	ı	(m)	;no.	2 2	(m)		(m)	2	(m)	2	(deg)
:	1-1		:		-3	:-:		:		- 1	4 000	- 2 -	
1: 1	3 F :	6.300	: :	.000	: 2	:F:	6.300	2	0.000	:	5.300	:	0.00
		11.700											
ABLE O			Iner	ia: l	Recta	ngular	Elemen	its (:	if spe	cif:	Led)		
Tumber	1	Area: (cm2):	(CI	14): 1	i of	D (mm)	2 B	(mm.) :	X (mm-)			
		:											
		50.00:											
	~ -	EMBER PRO	OPERT.	EEE									
	OF M												
UNUARY									_				
SUMMARY Sedmor	1 - 3	PRISMAT											
SUMMARY Sember	1 - 3												
SUMMARY Sember	1 - 3	PRISMAT											
SUPPORT	1 - 3 S	PRISMAT	e dia mili										
BUMMARY Member SUPPORT	1 - 3 5 Suppo	PRISMAT	e si in m. A			en ewn s		*=14					
BUMMARY Member SUPPORT No. of Joint	1 - 3 S Suppo	PRISMAT	t : Y	Rest	raint	: Ang	ular R	estra	int				
SUMMARY Member SUPPORT No. of Joint Number	1 - 3 S Suppo	PRISMAT	t : Y	Rest.	reint	: Ang	pular Re	estra radia	int				
SUPPLARY Member SUPPORT No. of Joint Number	1 - 3 S Suppo	PRISMAT rts = 4 Restrain (kN/mm	t : Y	Rest (kN	raint	: Ang	pular Re	estra radia	int				
SUMMARY Member SUPPORT No. of Joint Number	1 - 3 S Suppo	PRISMAT rts = 4 Restrain (kN/mm	t : Y	Rest (kN	raint	: Ang	ular R kN.m/: FULL SERO	estra radia	int				
SUMMARY Member SUPPORT No. of Joint Number 1 2 3	1 - 3 S Suppo	PRISMAT rts = 4 Restrain (kN/mm	t : Y	Rest (kN	raint /mm }	: Ang	pular Rokkins/	estra radia	int				

APPLIED LOADS AND NOMENTS	***
MEXBEN I	
LOAD CASE :LOAD: POSITION :LOAD / MONENT No: Name :Type: Start: Length: Start Value: End Va	Lue
1: Dead Load: UV: : : 40.500 kN/m:	
NDBER 2	
LOAD CASE :LOAD: POSITION :LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Va	lue
1: Dead Load: UV: : : 21.300 kN/m: 1: '': PV: 2.700 m: : 109.600 kN:	

* ******** EGYPTIAN ENGINEERS ** * JOB : W1	
* FOR * DATE: 9-92 * COMPUTERS * INPUT DATA *SHEST: 6	
* INPUT DATA *SHEET: 6	
ARALYSE (C)Copyright Computer and Design Services Limited 1985	
LPPLIED LOADE AND MOMENTS CONLINE	
MEMBER 3	
LOAD CASE :LOAD: POSITION :LOAD/NONENT No: Name :Type: Start: Length: Start Value: End Va	Lue
1: Dead Load: UV: : 36.700 kM/R:	
COMBINATIONS	
: TABULATED VALUES OF PARTIAL SAFETY FACTORS	cim dib m
LOAD CASS Combination Number	com silo su

申片可能と記憶中の中では同じた丁田田本のと可能は他が出土。	82	-	in a	131	E22	-	-	-	-	LE IN	-	7.01		en.	-	Bel	-	**	-	
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RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (mm)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	0.000	130.611	140.329
2	0.00	0.00	0.0004	0.000	230.198	0.000
3	0.00	0.00	~0.0010	0.000	259.506	0.000
4	0.00	0.00	0.0040	0.000	90.665	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kH) 0.000 0.000	Py (kH) -710.980 0.000	Ho (kH.m) -6258.771 0.000
Reactions Summation	0.000	-710.980 710.980	-6258.771 6258.771
Summation	0.000	0.000	0.000

Maxima for Member 1

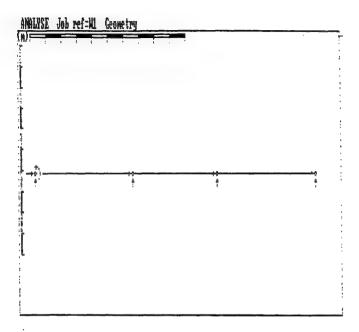
Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) ------

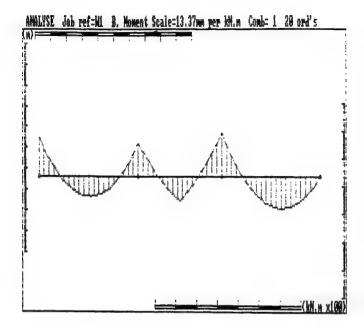
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Comb. (Abs. Hax.)(Compression) (Tension) Max. eve
                                 Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)
0.000 70.278 3.225 -140.329 0.000
         130.611
                     0.000
  1
Maxima for Member 2
Load Shear (kN)
                   Maximum Axial (kN) <----- Bending Homent (kN.m) ----->
Comb. (Abs. Max.) (Compression) (Tension) Max. 4ve Pos. (m) Max. -ve Pos. (m)
        -118.962
                               0.000 66.436 2.700 -157.122 5.400
                     0.000
Maxima for Member 3
Load Shear (kH) Maximum Axial (kH) <------ Bending Moment (kH.m) ------>
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)
        140.545
                    0.000 0.000 111.991 3.830 -157.122 0.000
                                      RESULTS FOR COMBINATION 1 MEMBER 1
  Position (m) Shear Force Axial Comp. Bend.Homent
from End 1 (kH) (kH) (kH.m)
                                                                    dy
                                                           dx
                                                                          Slope
from End 1
Jt. 2 6,300
                                                          (PM)
                                                                   (100)
                                                                          (deg)
        6.300
                  -124.539
                                   0.000
                                              -121.204
                                                          0.0
                                                                   0.0
                                                                          0.021
0.75%
                                   0.000
                                              24.713
         4.725
                   -60.752
                                                          0.0
                                                                   -2.0 0.087
0.50L
         3.150
                     3.036
                                   0.000
                                                70.164
                                                          0.0
                                                                   -3.3 -0.005
0.25L
                                                                   -1.8 -0.089
        1.575
                     66.823
                                   0.000
                                               15.150
                                                          0.0
      0.000
                   130.611
Jt. 1
                                   0.000
                                             -140.329
                                                          0.0
                                                                   0.0
                                                                         0.000
Maximum +ve Bending Moment 70.278 kH.m at 3.225m from joint 1 Maximum -ve Bending Moment -140.329 kH.m at 0.000m from joint 1
                             * ***** EGYPTIAN ENGINEERS ** * JOB : W1
                             . .
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                             9 POR
                                                               " DATE: 9-92

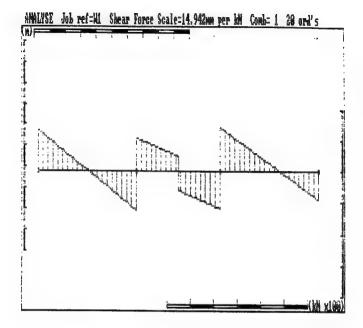
    COMPUTERS

٠
                             * A W A L Y S I S R E S U L T S *SHEET: 8
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RESULTS FOR COMBINATION 1. MEMBER 2
Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope
```

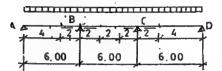
from End 1	(ldl)	(RH)	f licht . m. k	(Hem.)	(Right)	(deg)
Jt. 3 5.400	-118.962	0.000	-157.122	0.0		
0.75% 4.050	-90.207					-0.055
		0.000	-15.933	0.0		0.063
0.50% 2.700	-61.452	0.000	86.436	0.0	-1.6	0.008
0.25% 1.350	76.903	0.000	2.026	0.0	-0.8	-0.059
Jt. 2 0.000	105.658	0.000	-121.204	0.0	0.0	0.021
Maximum +ve Bend	diam Manage	86.436 km.				
Maximum -ve Bend	Jing Homent				joint 2	
DESTRUCTION Ad District		-157.122 km.	m at 5.400m	from	joint 2	
RESULTS FOR COM	SINATION 1	MEMBER 3				
Position (m)	Shear Force	Axial Comp.	Bend . Noment.	dx	dy	Slope
from End 1	(300)	(300)	(kW.m)	(100)	(88)	
Jt. 4 6.300	-90.665					(deg)
	-90.003	0.000	0.000	0.0	0.0	0.228
0.75L 4.725	-32.863					
0.50L 3.150		0.000	97.278	0.0	-5.4	0.135
0.25% 1.575	24.940	0.000	103.517	0.0		
	82.742	0.000	10.717	0.0		
Jt. 3 0.000	140.545	0.000			-3.6	-0.157
					0.0	-0.055
		000	-157.122	0.0	0.0	-01033
Maximum +ve Bend	ling Moment					-01033
Maximum +ve Bend Maximum -ve Bend	ling Moment	111.991 kw.	m at 3.830m	from	joint 3	-01033
Maximum +ve Bend Maximum -ve Bend	ling Moment ling Moment		m at 3.830m	from		-01033







مثال: كما بالرسم كمرة مستمرة وعليها الأحمال المؤسمة بالرسم (١) .



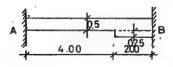
- ندخل احداثيات نقاط المنشأ وكذلك أعضائه وحالة الومسلات والقطاعات والركائن

كالاتى:

Joint	X(m)	Y(m)
1	0.0	0.0
2	6	0.0
3	12	0.0
4	18	0.0

Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con
1	1	F	2	F
2	2	F	3	F
3	3	F	4	F

قطاع الكمرة كما بالرسم ابعاده ٢٥ سم × ٥٠/٥٠ سم



[.] ۲۲۸ مهندس / خلیل ایراهیم واک (Design of Reinforced Concrete Beams) من ۲۲۸ مهندس / خلیل ایراهیم واک

Joint	Support	X Restraint	Y Restraint	A Restraint
1	Hinge	Full	Full	Zero
2	Hinge	Full	Full	Zero
3	Hinge	Full	Full	Zero
4	Hinge	Full	Full	Zero

- ندخل اسماء الاحمال (Load case names)

1- Dead Load

- تدخل قيم الاحمال المؤثرة على الاعضاء ٢ ، ٢ ، ٢

Dead Load UV 40 Kn/m

- ندخل حالات التحميل وهي واحدة

Dead Load: 1

- نضغط [٩] ثم [٧] للبدء في المل فتظهر خطوات المل تباعا على الشاشة .

- تظهر بيانات ونتائج المنشأ كالاتي:

Joint	rositions		
Jt.	X coord	Y	coord
No.	(m)		(m)
1	0.000		0.000
2	6.000		0.000
3	12.000		0.000
4	18.000		0.000

F1	F2	F6	P7	F8	Fii	F10 ESC		NUMBER
Help	Calc	Top	Up	Down	Commi	Bottom Escap		is ON
	Jnt X1 con P	and fixity Coord Y1 Coo (m) [m] 0.000 0.0 6.000 0.0	90 2 00 3	COR F	X2 Coord (m) 6.000 12.000 18.000	Y2 Coord (m) 0.000 0.000 0.000	Length (m) 6.000 6.000	Slope (deg) 0.000 0.000 0.000

F1	F2	F6	F7	28	2.0	F10	RSC	MINISOCA
Help	Calc			Down				in ON

Table of Sections
Section Area Inertia Ho. of
No. (cm2) (cm4) Elements
1 1250.000 260416.67 1
2 1875.000 878906.3 1

Elements of Section no. 1 Elem Y-dim B-dim D-dim No. (mm) (mm) (mm) 1 -250.000< 250.000 500.000

Input mode

Pl. P2 F6 F7 E8 P10 ESC BURLINGE P9 Up Down Command Bottom Escape Help Calc Top is ON Table of Sections Section Area Inertia No. of

Section Area Inertia No. of No. (cm2) (cm2) (cm4) Elements 1 1250.000 260416.67 1 2 1875.000 878906.30 1 3

878906.33

Input mode

ž

ã

1875.000

0.000

P7 F1 F2 P6 F8 F9 F10 ESC NUMLOCK Down Command Bottom Escape is ON Belp Calc Top CD GD Table of Sections Member Section Properties Inertia No. of Hem Hember No. Sec. Section Area Modulus E Length H/P Seg No. (cm2) No. (cm4) Elements No. (N/mm2) 1 1250.000 260416.67 1 1 6.000 M 2 21000.000

2

3

6.000 N

6.000 W 2

3

21000.000

21000.000

Input mode

P1 Help	F2 Calc	F6 Top		F8 DWR C	F9 F10 command Bottom	ESC Escape	NUMLOCK is ON
Table	of Sections			Nemb	er Section P	roperties	
Sectio	n Area	Inertia	No. of	Helen	Hembe x	No. Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Length N/P	Seg No.	(N/mm2)
1	1250.000	260416.67	1	1	6.000 M	2	21000.000
2	1875.000	878906.30	1	2	6.000 N	3	21000.000
3	0.000			3	6.000 W	2	21000.000

Input mode

F1	F2	F6	P7	P8	F9	F10	ESC	IMPLICE
Help	Calc	Top	Up	Down (Commend	Bottom	Escaps	is on
Section No.	Sections Area (cm2) 1250.000 1875.000 0.000	Inertia (cm4) 260416.67 878906.30	Mo. of Element 1	Heen	Henk Leng 6.	MEL	roperties No. Sec. Seg No. 2 3	Modulus E (W/mm2) 21000.000 21000.000 21000.000

Segment(s) of Number 3 Seg. Segment Section No. No. Length End1 End2 1 2.000< 2 2

2 4.000 1 1

Input mode

P) Hel			r2 alc	1	P6 Top	P7 Up	FB Down	F9 Commad	F10 Bottom	ESC Escape	NUMLOCK is ON
Suppo No.		×	Restraint (kN/mm)	¥	Restra (kN/mm		A Restr				
1.	1<		PULL		F	ULL		RENO			
2	2		FULL		P	ULL		BERO			
3	3		PULL		P	ULL		KERO			
4	4		PULL		F	ULL		KERO			

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc fop Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load
2

MUNTOCK F1 F2 26 **F**7 PB P9 P10 ESC Help Calc Down Command Bottom Escape is ON Top Üb Global load case names Ho. Load Case Name Dead Load î.

Input mode

Input mode

F8 F9 F10 ESC Down Command Bottom Escape P1 22 26 27 NUMLOCK Relp Calc Top Üρ MEMBER LOADS Hem Ho.of Loads i 1 ŝ ī

3 1

F1 Help	F2 Calc		F6 Top	F7 Up	FS Down	F9 Commad	F10 Bottom	ESC Escape	MUNILOCK is ON
	LOADS No.of Loads	Ld. L	oad case	name	Load	Start Pos(m)	Loaded Len(m)	l (kN,)	e = 0.000deg) kW.m or kW/m) al. End val.

Input mode

F1 F2 F5 F7 F8 F9 F10 ESC HHHLOCK
Help Calc Top Up Down Command Bottom Escape is ON

Safety Factors for Combination 1
Load Case Safety
Number and name factor
1 Dead Load 1.000<

F1 F2 F6 F7 F8 F9 F10 BSC NUMLOCK
Help Calc Top Up Down Command Bottom Escape is ON

Safety Factors for Combination 1
Load Case Safety
Number and name factor
1 Dead Load 1.000<

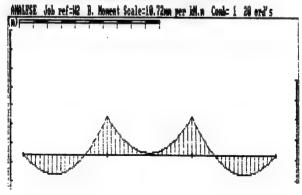
- JOB: WZ - DATE: - IMPUT DATA *SHEET:	* *	ATE:
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ne decentat. The crossian is the second and the second control of the control of	of Joints = 4	
1	BERS	
of Joints = 4	transport End 1 Details assesstances End 2 Details assesstances	
of Joints = 4 BERS : End 1 Details: End 2 Details		
BERS	s:Jt.:C: X coord : Y coord :Jt.:C: X Coord : Y Coord : Len	gth: Slop
of Joints = 4 BERS : End 1 Details End 2 Details	m:Jt.:C: X coord: Y coord:Jt.:C: X Coord: Y Coord: Len .:no.:: (m): (m): (m): (m):	(m) : (de
Of Joints = 4 BERS :	n:Jt.:C: X coord: Y coord: Jt.:C: X Coord: Y Coord: Len :mo.:: (m): (m):no.:: (m): (m):	(m) : (de
.eno.:: (m): (m): (m): (m): (m): (m): (m): (m	m:JC: X coord : Y coord : JC::C: X Coord : Y Coord : Len ::no.:: (m): (m): (m): (m): (m): (m): (m): (m	(m) : (de

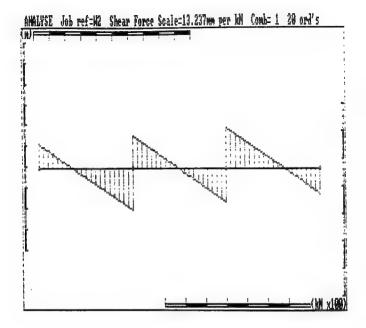
TABLE OF SECTIONS

ection :	: (Area: (cm2):	Ineri (c)	ia: n4):	Rect No:	angul D (1	ar E)	lemen B (ts (i£	spec Y (=	ified m))			
1 :	: 12!	50.00:	260410	6.7:	1:	500	.00:	250	.00:	-	250.	00	_			
2	: 18	75.00:	87890	6.3:	1:	750	.00:	250	.00:	-	375.	00	-			
SUMMARY (
Hember 1																
Segment.	1 L	evåtp =	2.00	0 m:	End	1 Se	tion	No.	- 1 2	:	End	2 Sec	tion	No.	•	2
Sember 2																
Segment	1 1	ength •	2.00	0 m:	End	1 Se	ction	No.	= 2		End	2 Sec	tion	No.	-	2
Segment	2	* *	2.00	0 20:					1							1
										-						
tember 3	MON	PRISN	Afic : 1	Hodu	lus	E =	2100	0.0 N	/mm2							
Segment	1 L	ength :	4.00	0 m:	End	1 50	ction	No.	- 2	:	End	2 Sec	tion	No.	-	2
UPPORTS																
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AMALY	SE (LOAD	C)Copy	right C	omp	ter	I and C	N P U	T	D /	T	A	ed 19	JOS DATE HEST	: W2	10	
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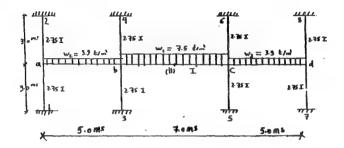
** ANALYSE (C)Copyright Computer and Design Ser ** ANALYSE (C)Copyright Computer and Design Ser ** SEXULTS FOR COMBINATION: I Joint No. dx(mm) dy(mm) 0(rad) Px 1 0.00 0.00 -0.0033 0 2 0.00 0.00 -0.0013 0 3 0.00 0.00 -0.0013 0 4 0.00 0.00 -0.0013 0 5 Unmation of Forces and Homents Px (kH) Py (kH) Mo (0.00 -720.000 -648 Joint Loads 0.000 -720.000 -648 Joint Loads 0.000 -720.000 -648 Summation 0.000 -720.000 -648 Summation 0.000 -720.000 -648 Summation 0.000 720.000 -648 Summation 0.000 0.000 Maxima for Homber 1 Load Shear (kH) Maximum Axial (kH) < Comb. (Abs. Max.) (Compression) (Tension) Max.+v 1 -151.091 0.000 0.000 Maxima for Homber 2 Load Shear (kH) Maximum Axial (kH) < Comb. (Abs. Max.) (Compression) (Tension) Max.+v 1 120.000 0.000 0.000 Maxima for Member 3 Load Shear (kH) Maximum Axial (kH) < Comb. (Abs. Max.) (Compression) (Tension) Max.+v 1 120.000 0.000 0.000 0.000 Maxima for Member 3 Load Shear (kH) Maximum Axial (kH) < Comb. (Abs. Max.) (Compression) (Tension) Max.+v 1 120.000 0.000	* DATE: *
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Joint Displacements and Reactions Joint Mo. dx(mm) dy(mm) 0(rad) Px 1 0.00 0.00 -0.0033 0 2 0.00 0.00 -0.0033 0 3 0.00 0.00 -0.0013 0 4 0.00 0.00 0.0013 0 50mmation of Forces and Noments Px (kN) Py (kN) Mo (continuous description of Forces and Noments Member Loads Px (kN) Py (kN) Mo (continuous description of Forces and Noments Px (kN) Py (kN) Mo (continuous description description of Forces and Noments Px (kN) Py (kN) Mo (continuous description descrip	kN.m) 0.000 0.000 0.000 0.000 0.000 0.000
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Summation of Forces and Moments	kN.m) 0.000 0.000 0.000 0.000 0.000
Summation of Forces and Moments	kN.m) 0.000 0.000 0.000 0.000 0.000
Reactions 0.000 -720.000 -648	0.000 0.000 0.000
Coad Shear (kB) Maximum Axial (kB) Comb. (Abs. Max.) (Compression) (Tension) Max.+vc. Coad Shear (kB) Maximum Axial (kB) Compression) (Tension) Max.+vc. Coad Shear (kB) Maximum Axial (kB) Coad Shear (kB) Maximum Axial (kB) Coab (Abs. Max.) (Compression) (Tension) Max.+vc. 1 20.000 0.	0.000
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Maxima for Nember	
Comb. (Abs. Max.)(Compression) (Tension) Max.sv 1 -151.091 0.000 0.000 98. Mexima for Nember 2 Load Shear (kH) Maximum Axial (kH) < 1 120.000 0.000 0.000 0.000 Maxima for Member 3 Load Shear (kH) Maximum Axial (kH) < Comb. (Abs. Max.) (Compression) (Tension) Max.sv Load Shear (kH) Maximum Axial (kH) < 1 151.091 0.000 0.000 98.	
Maxima for Hamber 2 Load Shear (kH) Maximum Axial (kH) <	- Bending Homent (kN.m)
Maxima for Hamber 2 Load Shear (kH) Maximum Axial (kH) <	e Pos. (m) Maxve Pos. (s
Maxima for Namber 2 Load Shear (kH) Haximum Axial (kH) < Comb. (Abs. Max.)(Compression) (Tension) Max.+v- 1 120.000 0.000 0.000 Maxima for Namber 3 Load Shear (kH) Haximum Axial (kH) < Comb. (Abs. Max.)(Compression) (Tension) Max.+v- 1 151.091 0.000 0.000 98.	W10 2.223 -1W6.547 6.0
Comb. (Abs. Max.)(Compression) (Tension) Max.+v 1 220.000 0.000 0.000 0.000 Maxima for Member 3 Load Shear (NN) Maximum Axial (NN) < Comb. (Abs. Max.)(Compression) (Tension) Max.+v 1 151.091 0.000 0.000 98.	
Comb. (Abs. Max.)(Compression) (Tension) Max.+v 1 220.000 0.000 0.000 0.000 Maxima for Member 3 Load Shear (kN) Maximum Axial (kN) < Comb. (Abs. Max.)(Compression) (Tension) Max.+v 1 151.091 0.000 0.000 98.	
1 120.000 0.000 0.000 0. Maxima for Nember 3 Load Shear (kN) Maximum Axial (kN) < Comb. (Abs. Max.)(Compression) (Tennion) Max.+v- 1 151.091 0.000 0.000 98.	- Bending Noment (kN.m)
Maximum Axial (kN) Compression Tension Max. eventon 151.091 0.000 0.000 98.	000 0000 -186 547 000
Load Shear (kN) Maximum Axial (kN) < Comb. (Abs. Max.)(Compression) (Tension) Max.*v 1 151.091 0.000 0.000 98.	
Comb. (Abs. Max.)(Compression) (Tension) Max.+v 1 151.091 0.000 0.000 98.	
1 151.091 0.000 0.000 98.	- Bending Moment (kN.m)
	e Pos. (m) Maxve Pos. (s
	810 3.777 -186.547 0.0
RESULTS FOR COMBINATION 1 MEMBER 1	
Position (m) Shear Force Axial Comp. Bend.	Noment dx dy Slove
from End 1 (kH) (kH)	
Jt. 2 6.000 -151.091 0.000 -1	(kN.m) (mm) (deg
0.75L 4.500 -91.091 0.000	(kN.m) (mm) (mm) (deg 86.547 0.0 0.0 0.07
0.50L 3.000 -31.091 0.000	(kN.m) (xm) (mm) (deg 86.547 0.0 0.0 0.07 -4.910 0.0 -2.6 0.11
1.251 1.500 28.909 0.000	(kN.m) (mm) (nm) (deg 86.547 0.0 0.0 0.07 -4.910 0.0 -2.6 0.11 86.726 0.0 -5.0 0.04
r. 1 0.000 88.909 0.000	Moment dx dy Slope (kN.m) (mm) (mm) (deg 86.547 0.0 0.0 0.07 -4.910 0.0 -2.6 0.11 86.726 0.0 -5.0 0.04 88.363 0.0 -4.2 -0.10 0.000 0.0 -0.18

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			•					* JOB : W	2
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·									
AMALIE	SE (C)CO	pyright Comp	uter a	d Desi	ga Servi	Ces Lim	ited 1	.985	•
		IMATION 1							
		Shear Force	Axial	Comp.	Bend . No	ment	dx	dy	Slope
from	End 1	(kN) -120.000		(kH)	(lc	H.m.)	(mp)	(==)	(dag)
1£. 3	6.000	-120.000			-186				
.75L	4.500	-60.000						1.1	
-50L	3.000	0.000		0.000		.547			0.000
.25L		60.000			-51				0.020
It. 2	0.000	120.000		0.000	-186	-547	0.0	0.0	0.072
Maximum (ive Bend	ing Moment	0	.000 kN	.m at	0.000=	from	ioint 2	
laximum -	-ve Bend	ing Moment	-186	547 kH	.m at	0.000m	from	joint 2	
ESULTS 1	POR COME	INATION 1	MEMBER	3					
Positio	on (m)	Shear Porce	Axial	Comp.	Bend . Ho	3000	dx	dv	Slope
from	End 1	(3cH)		(kH)	(k	H.m)	(==)		(deg)
It. 4	6.000	-88.909		0.000		. 000	0.0	0.0	
1.75L	4.500	-28.909		0.000	88	.363	0.0		
.50L	3.000	31.091		0.000		.726	0.0		
	1.500	91.091		0.000	-4	.910	0.0		-0.113
It. 3	0.000	151.091		0.000	-186	-547	0.0		-0.072
leximum d	ive Bend	ing Moment	98	.810 km	.m. at	1.777e	from	inint 1	
invious.	we Bend	ing Homent	-186	547 km	- 4	0.000m	from	inint 3	





مثال : كما بالرسم أطار هيكلى (Frame) وعليه أحمال مرزعة بانتظام (Uniform Dist.) $DL=4\,t/m$, $LL=3.5\,t/m$



وباستغدام المثال السابق يمكن حل البلاطات المسطحة (Flat slab) على هيئة أطار هيكلي (Frame).

– قطاع الأعمدة ٦٠ × ٦٠ سم والبلاطة ٦٠٠ سم في الاتجاه العمودي على الصفعة ويسمك ٢٠ سم .

- نعد البيانات الازمة للحل وهي :

(Joint Coordinates) مقاط النشأ

I	Jt	1	2	3	4	5	6	7	8	9	10	11	12
	x	0	0	0	5	5	5	12	12	12	17	17	17
1	у	0	3	6	0	3	6	0	3	6	0	3	6

وتظهر الشاشة في الصورة التالية :

Joint	positions	
Jt.	X coord	Y coord
NO.	(m)	(m)
1	0.000	0.000
2	0.000	3.000
3	0.000	6.000
4	5.000	0.000
5	5.000	3.000
5	5.000	6.000
7	12.000	0.000
8	12.000	3.000
9	12.000	6.000
10	17.000	0.000
11	17.000	3.000
12	17.000	6.000
13		

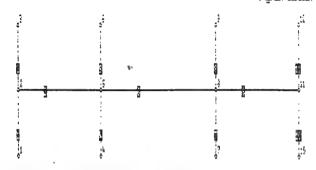
- نضغط [Esc] التسجيل وندخل أعضاء المنشأ طبقا الجدول التالي :

Member	Jt1	Jnt.con	Jt.2	Jnt.con
1	_ 1	F	2	F
2	2	F	3	F
3	2	F	5	F
4	4	F	5	F
5	5	F	6	F
6	5	F	8	F
7	7	F	8	F
8	8	F	9	F
9	8	F	11	F
10	10	F	11	F
11	11	F	12	F

وتظهر الشاشة في الصورة التالية :

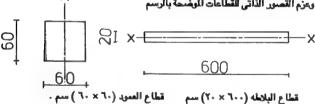
_											
Γ	Mer	nber i	Locati	on and	fixity						
l	Mem	Л.	Jnt X	1 Coord	Y1 Coon	d J2.	Jnt	X2 Coord Y	/2 Coord	i Length	Slope
l	No.	No.	Con	(m)	(m)	no.	. con	(m)	(m)	(m)	(deg)
l	1	1	F	0.000	0.000	2	F	0.000	3.000	3,000	90.000
l	2	2	F	0.000	3.000	3	F	0.000	6.000	3.000	90.000
l	3	2	F	0.000	3.000	5	F	5.000	3.000	5.000	0.000
ı	4	4	F	5.000	0.000	5	F	5.000	3.000	3.000	90.000
١	5	5	F	5.000	3.000	6	F	5.000	6.000	3,000	90.000
l	6	5	E	5.000	3.000	8	F	12.000	3.000	7.000	0.000
	7	7	E	12.000	0.000	8	F	12.000	3.000	3.000	90.000
1	8	8	F	12.000	3.000	9	Е	12.000	6.000	3.000	90.000
ı	9	8	F	12.000	3.000	11	F	17.000	3.000	5.000	0.000
İ	10	10	F	17.000	0.000	11	F	17.000	3.000	3.000	90.000
ı	11	11	F	17.000	3.000	12	F	17.000	6.000	3.000	90.000
ı	12										
1											

- نضغط [ESC] للعودة الشاشة الرئيسية ثم [D] التلكد من صحة البيانات فتظهر الشاشة التالية:



بعد التأكد من الرسم الفاص بالمنشأ نعود الشاشة الرئيسية بالضغط على [ESC] .

- نفعظ [۲] خصائص قطاعات وأعضاء المنشأ (Properties) وتحسب المساحة خ وعزم القصور الذاتي للقطاعات المرضحة بالرسم



ملاحظة: يمسب عزم القصور الذاتي حول المحور الذي تدور حوله عزوم الانحناء (Bending Moments)

Table of Sec	tions			Member Section Properties
Section Area	Inertia	No. of	Mem	Member No. Sec. modulus E
NO. (cm2)	(cm4)	Elements	No.	Length N/p Seg No. (N/mm2)
1 3600.000	1080000.00) 1	1	3.000 P< 1 1 21000.000
2 12000.000	400000.00) 1	2	3.000 p 1 1 21000.000
3			3	5.000 p 1 2 21000.000
			4	3.000 p 1 1 21000.000
			5	3.000 p 1 1 21000,000
			6	7.000 p 1 2 21000.000
			7	3.000 p 1 1 21000.000
			8	3.000 p 1 1 21000.000
			Inpu	t mode

Table of Sec	tions			Member	Sec	ion i	Propo	erties
Scction Area	Inertia	No. of	Mem	Member	No	Sec.	mod	ulus E
NO. (cm2)	(cm4)	Elements	No.	Length	N/p	Seg	No.	(N/mm2)
1 3600.000	1080000.00	1	4	3.000	P<	1	1	21000.000
2 12000.000	400000.00	1	5	3.000	P	1	1	21000.000
3			6	7.000	P	1	2	21000.000
			7	3.000	P	1	1	21000.000
			8	3.000	P	1	1	21000.000
			9	5.000	P	1	2	21000.000
			10	3.000	P	1	1	21000.000
			11	3.000	P	1	1	21000.000
			Inpu	t mode				

⁻ نضغط [ESC] للتسجيل والخروج للشاشة الرئيسية .

- نضفما [٤] الركائز Supports .

الركائز ١، ٢، ١، ٤، ٢، ١، ١٠ كلها ثابتة (Fixed Supports)

Suppo	rts			
No.	Joint	X Restraint	Y Restraint	A Restraint
	Pos	(KN/mm)	(KN/mm)	(KNm/rad)
Ł	1	Full	Full	Full
2	3	Full	Full	Full
3	4	Full	Full	Full
1	6	Full	Full	Full
5	7	Full	Full	Full
5	9	Full	Full	Full
7	10	Full	Full	Full
В	12	Full	Full	Full
)				

⁻ نضغط (ESC) للتسجيل والعودة الشاشة الرئيسية .

- نضغط [5] اسماء الاحمال (Load case names) وهي حمل ميت على البلاطة كلها (Dead Load) وثلاثة أحمال حية (Live Loads) .

تؤثر على الأعضاء ٣ ، ٧ ، ٩ وهي على الترتيب Live Load 1 , Live Load2 , Live Load3

وتظهر الشاشة في الصورة التالية :

		-	
Global Lo	oad Case Names		
No. Load	Case Name		
1	Dead Load<		
2	Live Load 1		i
3	Live Load 2		
4	Live Load 3		
5			

- نضغط (ESC) التسجيل والعودة الشاشة الرئيسية .

– نضغط [1] لادخال الأحمال المؤثرة علي الأعضاء [6 Member Loads]

- Member (3)		
1- Dead Load	UV	40 Kn/m`
2- Live Load1	UV	35 Kn/m`
- Member (6)		
1- Dead Load	UV	40 Kn/m`
2- Live Load2	UV	35 Kn/m`
- Member (9)		
1- Dead Load	UV	40 Kл/m`
2- Live Load3	UV	35 Kn/m`

وتظهر الشاشات التالية :

MEMBE	ER LOAD	S Lo	nds & s	noments on Mem	ber 3 (I	.ength=5.000m	slope = 0.000 deg)
Mem	No.of	Ld	Lond o	100	Load 3	Start Loaded	(KN, KN.m or KN/
No.	Loads	No.	Numbe	r & name	Туре	Pos (m) Len (ı	m) Start val . End va
1	0	1	1	Dead Load	UV		40.000
2	0	2	2	LIVE LOAD 1	UV		35.000
3	2	3					
4	0						
5	0						
6	2						
7	0						
8	0						
9	2						
10	0						
11	0						

MEMBER	LOAD	S Lo	ıds & m	oments on Memb	er 6 (L	ength	=7.000m	slope = 0.000deg)
Mem	No.of	Ld	Load c	ase	Load	Start	Loaded	(KN, KN.m or KN/m)
No.	Loads	No.	Numbe	r & name	Туре	Pos	(m) Len (m) Start val , End val ,
1	0	1	1	Dead Load	ŪV			40,000
2	0	2	3	LIVE LOAD 2	υv			35.000
3	2	3						
4	0							
5	0							
6	2							
7	0							
8	0							
9	2							
10	0							
11	0							

MEMBER	LOAD	S Lo	ads & mo	ments on Memb	er 9 (L	ength	=5.000m	slope = 0.000deg)
Mem	No.of	Ld.	Load ca	ne .	Load	Start	Loaded	(KN, KN.m or KN/m)
No.	Loads	No	Number	& name	Турс	Pos	(m) Len (ı	m) Start val . End val .
1	0	1	1	Dead Load	UV			40.000
2	0	2	4	LIVE LOAD 3	UV			35.000
3	2	3						
4	0							
5	0							
6	2							
7	0							
8	0							
9	2							
10	0							
11	0							
		_						

ة الرئيسية .	– نضغط [ESC] العودة الشاشا
(8 Combinations	– نضغط [٨] حالات التصيل (
Case (1): (DL + LL1)	ندخل حالات التحميل كما بالرس
Case (2): (DL + LL2)	
Case (3): (DL + LL1 + LL2)	
Case (4): (DL+LL1+LL2+LL3)	
Case (5): (DL + LL1 + LL3)	

تظهر الشاشات التالية :

Safety Factors for Combination 1							
Load	Case	Safety					
Num	ber and name	factor					
1	Dead Load	1.000<					
2	LIVE LOAD 1	1.000					
3	LIVE LOAD 2	0.000					
4	LIVE LOAD 3	0.000					

Safe	ety Factors for Comb	ination 2
Loa	d Case S	Safety
Nui	mber and name	factor
1	Dead Load	1.000<
2	LIVE LOAD 1	0.000
3	LIVE LOAD 2	1.000
4	LIVE LOAD 3	0.000

-	Safety Factors for Combination 3								
	Load C	Safety							
	Numbe	factor							
	1	Dead Load	1.000<						
	2	LIVE LOAD 1	1.000						
	3	LIVE LOAD 2	1.000						
	4	LIVE LOAD 3	0.000						

Safe	Safety Factors for Combination 4							
Loa	d Case	Safety						
Nun	Number and name							
1	Dead Load	1.000<						
2	LIVE LOAD 1	1.000						
3	LIVE LOAD 2	1.000						
4	LIVE LOAD 3	1.000						

Safety Factors for Combination 5							
Load Case Safety							
Num	ber and name	factor					
1	Dead Load	1.000<					
2	LIVE LOAD 1	1,000					
3	LIVE LOAD 2	0.000					
4	LIVE LOAD 3	1.000					

- نضغط (ESC) التسجيل والعودة الشاشة الرئيسية .
 - نضغط [٩] المل (9 Analysis / Results)
- نضغط [۲] لشاهدة خطرات الحل على الشاشة (Y] لشاهدة خطرات الحل على الشاشة
- تظهر نتائج الأمضاء كلها ومنها رقم ٣ ، ٦ ، ٩ لمالات التمديل من ١ إلى ٥ .

Joint	positions	
Jt.	I coord	Y coord
No.	(=)	(=)
1	0.000	0.000
2	0.000	3.000
3	0.000	6.000
4	5.000	D.000
5	5.000	3.000
6	5.000	6.000
7	12.000	0.000
ě.	12.000	3.000
9	12.000	6.000
10	17.000	0.000
11	17.000	3.000
12	17.000	6.000
13		

F) Help	F2 Calc	P6 Top	Up	F8 Down	Commend	F10 Bottom !	ESC Escape	is ON
		and fixity	ord J2.	Jnt X	2 Coord	Y2 Coo	rd Length	Slope

No.	no.	COR	(m)	(=)	no.	con	(m)	(m)	(m)	(deg)
1	1	F	0.000	0.000	2	F	0.000	3.000	3.000	90.000
2	2	F	0.000	3.000	- 3	P	0.000	6.000	3.000	90.000
3	2	F	0.000	3.000	5	F	5.000	3.000	5.000	0.000
- 4	- 4	· F	5.000	0.000	5	P	5.000	3.000	3.000	90.000
5	5	F	5.000	3.000	6	E*	5.000	6.000	3.000	90.000
6	5	P	5.000	3.000	8	7	12.000	3.000	7.000	0.000
7	7	P	12.000	0.000	8	P	12.000	3.000	3.000	90.000
8	8	P	12.000	3.000	9	F	12.000	6.000	3.000	90.000
9	8	F	12.000	3.000	- 11	F	17.000	3.000	5.000	0.000
10	10	P	17.000	0.000	11	F	17.000	3-000	3.000	90.000
11 12	11	P	17.000	3.000	12	F	17.000	6.000	3.000	90.000

F1 Help	Calc	F6 Top	P7 Up	P9 Commd		NUMLOCK is ON

Table of Sections
Section Area Inertia Mo. of
Mo. (cm2) (cm4) Elements
1 3600.000 1080000.00 1
2 12000.000 400000.00 1
J

Input mode

P1 Bel	P2 P Calc	F6 Top		FB lown C	F9 Ommad Bo	F10 ottom		BC ape	MUNLOCK, in ON
Table	of Sections			Homb	er Secti	ion P	rope	rties	
Section	on Area	Inertia	No. of	Nen	Hember	r	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	Ho.	Lengti	h M/P	Seq	No.	(N/mm2)
1	3600.000	1080000.00	1	1	3.00	90 P	í	1	21000.000
2	12000.000	400000.00	1	2	3.00	00 P	ī	1	21000.000
3				3	5.0	00 P	1	2	21000.000
				4	3.0	00 P	1	1	21000.000
				5	3.00	00 P	1	1	21000.000
				6		00 P	1	2	21000.000
				7		00 P	1	1	21000.000

8 3.000 P 1 1 21000.000 Input mode

P1	F2	P6		F8 F			sc	NUMLOCK
Help	Calc	Top	Up n	OWIL COM	and Bott	om Esc	ape	is ON
Table of	Sections			Newber	Section	Prope	rties	
Section	Area	Inertia	No. of	Men.	Member	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Length N	/P Seq	No.	(N/mm2)
	600.000	1080000.00	1	4	3.000	P 1	1	21000.000
2 12	000.000	400000.00	1	5	3.000	P 1	. 1	21000.000
3				6	7.000	P 1	2	21000.000
				7	3.000	P 1	1	21000.000
				8	3.000	P 1	1	21000.000
				9	5-000	P 1	2	21000.000
				10	3.000	P 1	. 1	21000.000
				11	3.000	P< 1	1	21000.000
				Input	mode			

	Fl elp	F2 Calc	P6	F7	F8	F9	F10	ESC	NUMLOCK
п	arb	CHEC	Top	Up	Down	Commund	Bottom	Racebe	is ON
	porte								
No.	Jnt	X Restraint	Y Restr	aint	A Restr	aint			
	Pos	(kH/mm)	(kH/=	m)	(kitm/z	rad)			
1	1<	PULL		FULL		FULL			
2	3	FULL		PULL		PULL			
3	4	PULL		PULL		FULL			
4	6	FULL		PULL		FULL			
- 5	7	FULL		FULL		FULL			
- 6	9	PULL		FULL		FULL			
7	10	PULL		FULL		FULL			
8	12	FULL		FULL		FULL			
- 6						- 044			

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load<
2 LIVE LOAD 1
3 LIVE LOAD 2
4 LIVE LOAD 3

Input mode

F1 F2 26 27 P8 F9 P10 ESC MUNICOCK Help Calc Top Up Down Commad Bottom Escape is ON Loads & moments on Nember 3 (length = 5.000m slope = 0.000dsg)
Ld. Load case Load Start Loaded (kN kM m or kN/m)
No. Number & name Type Pos(m) Len(m) Start val. End val. MEMBER LOADS New. No.of No. Loads Dead Load UV 1 a 1 1 40.000 ā 2 2 LIVE LOAD 1 UV 35.000 23456 ž ä ō ō 2 7 0 8 9 0 2 10 ō ö 11

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC MUNLOCK Help Calc Top Up Down Command Sottom Escape is ON

MEMBE Mom No. 1 2 3 4 5 6 7 8 9 10	R LOADS No.of Loads 0 0 2 0 2 0 2 0 2	Id. L No. N	oad case umber & : l		Load Type ad UV	Start	Loaded	00m slope = 0 (kN, kN.m Start val. 40.000 33.000	o.000deg) Or kN/m) End val.
		Input	mode						
P) Bel			P6 Top	F7 Up	F8 Down	P9 Commod 3	F10 Bottom	ESC Escape	NUMLOCK is ON
MEMBE Hem No. 1 2 3	R LOADS No.of Loads 0 0	Ld. L No. N	& moment oad case umber & : 1< 4 L		Load Type ad UV	1 Start	Loaded	00m slope = ((kN, kN.m Start val. 40.000 35.000	
4 5 6 7 8 9 10	0 0 2 0 0 2 0								
		Input	mode						
ri Rol			F6 Top	F7 Up	F8 Down	P9 Commnd 1	F10 Bottom :	ESC Escape	NUMLOCK is ON
Load	or and name of the LIVE		mbination Safet; factor 1.00 0.00 0.00						

F1	F2	P6	F7	F8	F9	P10	ESC	is ON
Help	Calc	Top	Up	Down	Commd	Bottom	Escape	
Load Ca		D 1 0.000 D 2 1.000	3					

Input mode

Help	Calc	Top	Üp	Down	Commod	Bottom	Escape	is ON
Load Ca	Factors for use and name Dead Los LIVE LOAD LIVE LOAD LIVE LOAD	Safety factor d 1.000 1 1.000 2 1.000						

F1 Relp	F2 Calc	P6 Top	P7 Up	F6 Down	F9 Commad	F10 Bottom	ESC Escape	NUMLOCK is ON
Safety S Load Can Rumber 4 1 2 3 - 4		bination Safety factor 1.000 1.000	K					
Input :	node							
F1 Help	F2 Calc	P6 Top	F7 Up	IVII Down	III Command	F10 Bottom	ESC Escape	NUMLOCK is on
Load Car	Pactors for Com se and name Dead Load LIVE LOAD 1 LIVE LOAD 2 LIVE LOAD 3	bination Safety factor 1.000 1.000 0.000						
Input	node							

													e :======		
•					- 1	100	YPT1A	ENGIN	EERS				· JOB :	n	RAME
•							OR CO	4PUTERS	(B	E C)		* DATE:	1	992
:					,	15	1 I	IPU T	T.,NO	A T	y 2211	•	• JOB : • DATE: • SHEET:		5
+ ANI	ALYSE	(C)Co	pyri	ight	Compu	ter	and De	esign S	ervic	es Li	mite	ed :	1985		
FRAME				THE S						24464			*****		
No. o	f Joi	nts =	12												
MEMBE															
		End	l Det	tails		=		End 2	Detai	ls		-:-		- 1 -	
Mem:J	t.:C:	X ce	broc	1 Y	coor	d s	Jt.:C:	X Cos	erd :	Y Co	ord	2	Length	2	Slope
No. : ne	0.: :		(m)	3	(==) ::	no-: :		m) :		(m)	:	(m)	2	(deg)
:	:-:			- 5		:	:-:					- : -	3.000 3.000 5.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000	- 8 -	
1:	1:F:	0	.000	2	0.00	0 :	2:F:	0.0	100 :	3.	000	2	3.000	:	90.00
2:	2:F:	0	.000	1	3.00	0 :	3:6:	0.0	: 00		000		3.000	2	90.00
3:	2:2:	0	.000	2	3.00	0 :	5:F:	5.	100	3.	.000	2	3.000	1	0.00
41	4153	2	.000	1	0.00	0 :	SIFI	3.	100 :	3.	000		3.000		90.00
51	2151	2	.000		3.00	0 :	0:F:	13.	100 :		000		7 000	:	0.00
2.	7188	12	200	*	0.00	0 :	0.2.	12.	100	3	200	:	3 000	:	90.00
/:	7525	12	000		3.00	0 :	0.00	12	100	6	000	:	3.000	:	90.00
0.	0121	12	000		3.00		11.P.	17	100	3	000	:	5.000	:	0.00
10.	10.5.	12	000		0.00		11.P.	17	100	3.	000	:	3.000	:	90.00
114	11-7-	17	000		3 00	0 :	17.0.	17	100 :	5	000	:	3.000	:	90 00
***			.000		3.00		*****	****						·.	
		ECTIO													
Secti	on :	Ar	ea z	Inc	rtias	Re	ctangu	lar El	ments	rif	spe	cif	ied)		
Numbe	r :	(Cm	2):		cm4):	Mo	: D (mm):	B (m	1):	Y (um)			
			3					1							
								.00:				.00			
							8	:							
2	: 1	2000.	00:	4000	100.0:	1	: 200	.00:	6000.0	10:	0	.00			
								1							
		T MEMB				MARK MARK								100 SUP (6	
HUMPAN	MY OF	MUCHIE	BB. P	HOPE	or rem										
Mamha	e 1 -	2 PB	TEMA	TTC :	Sect	ion	Numbe	- 1 -	Modu I	ne E		21	000.0 N	/	-2
Membe	r 3 9	RISMA	TIC	1 Sec	tion	Kum	her 2	2 Nod	lus E	= 5	210	oo.	0 N/mm2		
Membe	r 4 -	5 PR	ISMA	TIC :	Sect	ion	Mumba	r 1 :	Modu 3	lus &		21	000.0 N	/=9	a 2
Hambe	r 6 P	RISMA	TIC	: Sec	tion	Mun	ber 2	1 Mod	alus E		210	00.	0 N/mm2		
Momba													000.0 N		
Hembe	r 9 P	RISMA	TIC	: Sec	tion	Num	ber 2	: Nod	ilus I		210	00.	0 M/mm2		
Membe	r 9 P	RISMA	TIC	: Sec	tion	Num	ber 2	: Nod	lus I	=	210	00.			

No. of Supports . 8

SUPPORTS

Joint : Y Restraint : Y Restraint : Angular Restraint Number: (kW/mm): (kW/mm): (kW.m/radian) Continued on Next Page)-----* JOB : PRAME * ECYPTIAN ENGINEERS * FOR COMPUTERS (E E C) * DATE: 1992 * 190 EL_SUDAN ST., MOHANDESSIN INPUT DATA *SHEET: 6 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 SUPPORTS continued Joint : X Restraint : Y Restraint : Angular Restraint Number: [kH/mm): (kH/mm): (kH.m/radian) -----------PULL. : FULL PULL FULL FULL FULL FULL FULL FULL FULL FULL : 1 PULL . 8 FULL : FU . . 10 12 8 APPLIED LOADS AND MOMENTS LOAD CASE :LOAD: POSITION : LOAD / MONENT No : Name :Type: Start: Length: Start Value: End Value ---1-----Dead Load: UV : 14 40.000 kN/m: LIVE LOAD 1: UV : 2: : 35.000 kN/m: . -----MEMBER 6 LOAD CASE :LOAD: POSITION : LOAD / NOMENT No : Name :Type: Start: Length: Start Value: End Value Dead Load: UV : : 40.000 kN/m: 1: Dead Load: UV : 3: LIVE LOAD 2: UV : . 35.000 kN/m: 2 MEMBER 9 LOAD CASE :LOAD: POSITION : LOAD / NOMENT No : Name :Type: Start: Length: Start Value: End Value 1 -Dead Load: UV : 1 40.000 kN/m: 2 35.000 kN/m: 8 4: LIVE LOAD 3: UV :

COMBINATIONS

: TABULATED VALUES OF PARTIAL SAPETY FACTORS

2

LOAD CASE : Combination Number

No	:	Name	1	1	z	2	=	3	2	4	:	5
			:		:		:		:		2	
1	:	Dead Load										
2	:	LIVE LOAD 1	:1.									000
3	1	LIVE LOAD 2	Ε		:1.	000	:1.	000	:1.	000	:	
4	٠	LIVE LOAD 3	2		2		:		:1.	000	:1.	000

Joint Displacements and Reactions

dy(mm) 0.00 -0.02 0.00 0.00 0(rad) 0.0008 -0.0001

0.0000

Px (kW) 16.608

-16.608 47.867 Py (kN) 45.925

45.925 185.325 M (kN.m) -16.608

> -16.608 -47.867

dx(mm) 0.00 0.00 0.00 0.00

Joint Wo.

23

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		,	EGYPTIAN E	MGTHEERS	* JOI	: FRAME
•		1	FOR COMPU	TERS (B B C	: } * DA!	ME: 1992
		1	190 EL_SUD	AN ST., MOHANDI	5551# *	
		,	AHALI	PIP KEP	I P E S - SUPI	23.5
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70701100		due combe				
ESULTS FOR	COMBINA	710W 1				
Joint Displ	acements	and React:	ions			
Joint No.	dx(mm)	dy(ma)	Otradi	Px (kH)	Py (k#)	M /kN.m
1	0.00	0.00		35.268	91.488	-35.26
2	0.00	-0.04	-0.0002			
3	0.00	0.00	0.0000	-35.268	91.488	-35.26
ā.	0.00	0.00	0.0000	0.467	166.519	-0.46
5	0.00	-0.07	0.0000			
6		0.00		-0.467	166.519	-0.46
ž	0.00	0.00	0.0000	-16.134	121.656	16.13
á	0.00	-0.05	0.0000 0.0001 0.0000			
ğ	0.00	0.00	0.0000	16.134	121.656	16.13
10	0.00	0.00	0.0000	-18.076	47.837	18.07
11	0.00	-0.02	0.0001			
12	0.00	0.00	0.0000	18.076	47.837	18.07
Summation o	f Forces	and Homen	ts.			
	1	Pac (JoH)	Py (kN)	Mo (kH.m)		
tember Load		0.000	-855.000	-6217.500		
foint Loads		0.000	0.000	0.000		
Reactions		0.000	-855.000	-6217.500		
ummation		0.000	855.000	6217.500		
lumation		0.000	0.000	0.000		

5	0.00	-0.07	-0.0003			
6	0.00	0.00	0.0000	-47.867	185.325	-47.867
7	0.00	0.00	0.0000	-47.867	185.325	47.867
8	0.00	-0.07	0.0003			
9	0.00	0.00	0.6008	47.867	^ 185.325	47.867
10	0.00	0.00	0.0000	-16.608	45.925	16.608
11	0.00	-0.02	0.0001			
12	0.00	0.00	0.0000	16.608	45.925	16.608

•				MGINEURS		B : FRAME
:			POR COMPU	TERS (E E C	:) * DA	TE: 1992
•			AHALY	AN ST., MOHANDE SIS RESU	LTS SHE	ET: 8
				qn Services Li		
- ARADIS	(c)copyr	ranc comba	cer and best	dr services r	MATERIAL 1382	
RESULTS FOR						
Summation o	f Forces	and Homen	ts			
		Px (kH)	Pv (kH)	No (kH.m)		
Member Load		0.000	Py (kH) -925.600	~7862.500		
Joint Loads		0.000	0.000	0.000		
Reactions			-925.000			
Reactions Summation		0.600	925.000	7862.500		
Summation		0.000	0.000	0.000		
RESULTS FOR						
Joint Displ	acements	and React	ions			
Joint Mo.	dx(ma)	dy (ma)	0(rad)	Px (kH)	Pv (kN)	M (3cN m)
1	0.00	0.00	9.0000	33.823	89.606	-33.823
2		-0.04				,
3	0.00	0.00	0.0000	-33.823	89.606	-33.823
4	0.00	0.00	0.0000	31.697	229.651	
5	0.00	-0.09	-0.0002			
6	0.00	0.00	0.0000	-31.697	229.651	
7	0.00	0.00	0.0000	-47.365	184.788	47.365
		-0.07				
9	0.00	0.00	0.0000	47.365		47.365
10	0.00	0.00	0.0000	-16.632	45.956	16.632
11	0.00	0.00 -0.02 0.00	0.0001			
12				16.632	45.956	16.632

Summation of Forces and Moments

Member Loads Joint Loads	0.000 0.000	Py (kN) -1108.000 8.000	Mo (kM.m) -8300.000 0.000
Reactions Summation	0.000	-1100.000 1100.000	-8300.000 8300.000
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 4

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mpa)	0(rad)	Px (kH)	Py (kH)	H (kH-m)
1	0.00	0.00	0.0000	33.848	B9.637	-33.848
2	0.00	-0.04	-0.0002			
3	0.00	0.00	8.0000	-33.848	89.637	-33.848
4	0.00	0.00	0.0000	31.195	229.113	-31.195
5	0.00	-0.09	-0.0062			
6	0.00	0.00	0.0000	-31.195	229.113	-31.195
7	0.00	0.00	0.0000	-31.195	229.113	31.195
				March Same		

	1100			eque.	-	-	-	84	==	eray t		100					B WEE		-	72	-	-	J==
•		E	SYE	T	(A)	1 8	HG	IN	EE	RS							*	JOB		P	RAP	IE,	
•																							
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•		15	90	EI	. 5	UD	AN	s	T.	. 14	DEL	WE	E	SSI	163		ø.	HEE					
•		A	н	A	Ľ	Y	s	1	ŝ	R	E	8	U	L	Ŧ	g	45	HEE	F٤			9	
*						-																	

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RESULTS FOR COMBINATION 4 continued

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (ma)	0(rad)	Px (kH)	Py (kal)	M (kN.m)
	0.00	-0.09	0.0002			
9	0.00	0.00	0.0000	31.195	229.113	31.195
10	0.00	0.00	0.0000	-33.848	89.637	33.948
11	0.00	-0.04	0.0002			
12	0.00	0.00	0.0000	33.848	89.637	33.848

Summation of Forces and Moments

Member Loads Joint Loads	Px (kH) 0.000 0.000	Py (kH) -1275.000 0.000	Mo (kW.m) -10837.500 0.000
Reactions	0.000	-1275.000	-10837.500
Summetion	0.000	1275.000	10837.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 5

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	35-292	91.519	-35.292
2	0.00	-0.04	-0.0002			
3	0.00	0.00	0.0000	-35.292	91.519	-35.292
i i	0.00	0.00	0.0000	-0.036	165.981	0.036
5	0.00	-0.07	0.0008			
6	0.00	0.00	0.0000	0.036	165.981	0.036
7	0.00	0.00	0.0000	0.036	165.981	-0.036
8	0.00	~0.07	0.0000			
9	0.00	0.00	0.0000	-0.036	165.981	-0.036
10	0.00	0.00	0.0000	-35.292	91.519	35.292
11	0.00	-0.04	0.0002			
12	0.00	0.00	0.0000	35.292	91.519	35.292

Summation of Forces and Homents

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kH) -1030.000 0.000	Mo (kN.m) -8755.000 0.000
Reactions Summation	0.000	-1030.000 1030.000	-8755.000 8755.000
Summation	0.000	0.000	0.000

•	* EGIPTIAN ENGINEERS	* JOB : PRAME
*	*	*
		* DATE: 1992
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Maxima for Member 1		

Load	Shear (kN)	Maximum Axi	al (kH)	< Be	ending Nom	ent (kN.m)	>
Comb.	(Abs. Max.) (Compression)	(Tension)	Max. +ve	Pos. (m)	Maxve	Pos. (m)
1	-35.268	91.488	0.000	35.268	0.000	-70.536	3.000
2	-16.608	45.925	0.000	16.608	0.000	-33.215	3.000
3	-33.823	89.606	0.000	33.823	0.000	-67.647	3.000
4	-33.848	89.637	0.000	33.848	0.000	-67.695	3.000
5	-35.292	91.519	0.000	35.292	0.000	-70.584	3.000

Maxima for Member 2

Load	Shear (kW)	Haximum Axi	ial (kH)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.) (Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-35.268	0.000	91.488	70.536	0.000	-35.268	3.000
2	-16.608	0.000	45.925	33.215	0.000	-16.608	3.000
3	-33.823	0.000	89.606	67.647	0.000	-33.823	3.00€
4	-33.848	0.000	89.637	67.695	0.000	~33.848	3.000
5	-35.292	0.000	91.519	70.584	0.000	-35.292	3.000

Maxima for Member 3

Load	Shear (IcN)	Maximum Ax	ial (kW)	< B	lending Mo	ment ()(N.m)	>
Comb.	(Abs. I	lax.)(Compression)	(Tension)	Max. tve	Pos. (m)	Maxve	Pos. (m)
1	-192	.025	0.000	0.000	82.128	2.440		5.000
2	-101	3.151	0.000	0.000	39.024	2.296		5.000
3	-19	.788	0.000	0.000	78.819	2.389		5.000
4	~19	.726	0.000	0.000	78.871	2.390	-176.520	5.000
5	~19	.963	0.000	0.000	82.183	2.440	-163.481	5.000
Maxim	a for M	mber	4					
	a for M			ial (kN)	< I	Bending Mo	ment (kN.m)	
Load	Shear	(lcN)					Maxve	Pos. (m)
Load	Shear (Abs.	(lcN)	Haximum Ax			Pos. (m)	Maxve -0.934	Pos. (m) 3.000
Load	Shear (Abs.	(kN) (ax.)	Maximum Ax (Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve -0.934 -95.734	Pos. (m) 3.000 3.000
Load	Shear (Abs.	(kN) (ax.)	Maximum Ax (Compression) 166.519	(Tension)	Max.+ve 0.46	Pos. (m) 7 0.000 7 0.000 7 0.000	Maxve -0.934 -95.734 -63.394	Pos. (m) 3.000 3.000 3.000
Load	Shear (Abs. 1 -4 -3	(kN) 6ax.) 0.467	Maximum Ax (Compression) 166.519 185.325	(Tension) 0.000 0.000	Max.+ve 0.46 47.86	Pos. (m) 7 0.000 7 0.000 7 0.000	Maxve -0.934 -95.734 -63.394 -62.389	Pos. (m) 3.000 3.000 3.000 3.000

Maxima for Member 5

Load	Shear (kN)	Maximum Axi	ial (kH)	< Be	ending Hom	ent (kW.m)	>
Comb.	(Abs. Hax.)(Co	mpression)	(Tension)	Hax. tve	Pos. (m)	Maxve	Pos. (m)
1	-0.467	0.000	166.519	0.934	0.000	-0.467	3.000
2	-47.867	0.000	185.325	95.734	0.000	-47.867	3.000
3	-31.697	0.000	229.651	63.394	0.000	-31.697	3.000
4	-31.195	0.000	229.113	62.389	0.000	-31.195	3.000
5	0.036	0.000	165.981	0.036	3.000	-0.071	0.000

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Naxim	a for Member	6			********		
Naxim		-			********		**********
Load	Shear (kW)	Maximum Axi				ent (kN.m)	>
Load		Maximum Axi					Pos. (m)
Load	Shear (kW)	Maximum Axi			Pos. (m)	Maxve	Pos. (m)
Load	Shear (kW) (Abs. Max.)(Maximum Axi Compression)	(Tension) 0.000	Max.+ve	Pos. (m) 3.525	Maxve -165.563	Pos. (m) 0.000
Load	Shear (kW) (Abs. Max.)(141.013	Maximum Axi Compression) 0.000	(Tension) 0.000 0.000	Max.+ve 82.997	Pos. (m) 3.525 3.500	Maxve -165.563 -298.652	Pos. (m) 0.000 0.000
Load	Shear (kW) (Abs. Max.)(141.013 262.500	Maximum Axi Compression) 0.000 0.000	(Tension) 0.000 0.000 0.000	Max.+ve 82.997 160.723 159.407	Pos. (m) 3.525 3.500 3.514	Maxve -165.563 -298.652 -303.522	Pos. (m) 0.000 0.000 0.000
Load	Shear (kW) (Abs. Max.)(141.013 262.500 263.513	Maximum Axi Compression) 0.000 0.000	(Tension) 0.000 0.000	Max.+ve 82.997 160.723	Pos. (m) 3.525 3.500 3.514 3.500	Maxve -165.563 -298.652 -303.522	Pos. (m) 0.000 0.000 0.000

Maxima for Hember 7

Maxima for Member 8

Load	Shear (kH)	Maximum Azi	ial (kil)	< I	Bending Mom	mt (kN.m)	>
Comb.	(Abs. Hax.)(Co	اعمارهوهاص	(Tension)	Max. +ve	Pos. (R)	Maxve	Pos. (m)
1	16.134	0.095	121.656	16.13	4 3.000	-32.269	
2	47.867	0.000	185.325			-95.734	
3	47.365	0.000	184.788	47.36		-94.729	0.000
	31.195	O. DER	229.113	31.19		-62.389	0.000
5	-0.036	0.000	165.961	0.07	1 0.000	-0.036	3.000

Maxima for Hember 9

Load	Shear (kH)	Maximus Assi	ial (kW)	< B	ending Mom	ent (kH.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max. +ve	Pos. (m)	Maxve	Pos. (E)
1	104.325	0.006	0.000	42.116			
2	108.151	0.000	0.000	39.024	2.704	-107.183	0.000
3	108.089		6.000	39.070	2.702	-146.970	0.000
- Ä	195.726	0.000	0.008	78.871		-176.520	0.000
5	191.963	0.000	6-000	82.183	2.560	-163.481	300.0

Maxima for Member 10

	Shear (kH)	Haximum Ani					>
Comb.	(Abe. Hax.) (Compression)	(Tension)	Max.+ve		Hazve	Pos. (m)
1	18.076	47.837	0.000	36.152		~18.076	0.000
2	16.608	45.925	0.000	33.215		-16.608	0.000
3	16.632	45.956	0.000	33.263	3.000	-16.632	0.000
4	33.848	89.637	0-000	67.695	3.000	-33.848	0.000
5	35.292	91.519	9.500	70.584	3.000	-35.292	0.000

•	• BCYPTIAM ENGINEERS	- JOB : FRAME
		*
•	* POR COMPUTERS (E E C)	* DATE: 1992
•	* 190 EL SUDAM ST., MOHAMDESSIN	*~~~~~~
•	*ANALYSIS RESULTS	*SHEET: 12
	eter and Design Services Limited 1	
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Maxima for Hember 11

Lcau	Glasse (KR)	Hay we ref	el (kF)	Sec. 2:	ending Hom	ant (kk.m)	>
Ci., 4,,	(Auto metal)	Compressuas)	(Tension)	Hax. tve	Pos. (m)	Maxve	Pos. (m)
1	18.076	0.008	47-837	18.076	3.000	-36.152	0.000
2	16.608	0.008	45.925	16.608	3.000	-33.215	0.000
3	16.632	0.006	45.956	16.632	3.000	-33.263	0.000
4	33.848	0.008	89.637	33.848	3.000	-67-695	0.007

5	35.2		91.519	35.292	3.000	-70.584	0.000
RESULTS	FOR COM	BINATION 1					
Posit:	ion (m)	Shear Force	Axial Comp. (kM) 91.488 91.488	Bend . Homent	dx	dy	Slope
froi	m End 1	(kH)	(kH)	(kH.m)	(===)	(mm)	(deg)
Jt. 2	3.000	-35.268	91.488	-70.536	0.0	0.0	89.987
0.75L	2.250	-35.268	91.488	-44.085	-0.1	0.0	89.997
0.50L	1.500	-35.268	91.486	-17.634	-0.1	0.0	90.003
0.25L	0.750	-35.268	91.488 91.488	8.817	0.6	0.0	90.004
Jt. 1	0.000	-35.268	91.488	35.268	0.0	0.0	90.000
Maximum	tve Ben	ding Moment	35.268 kM	-m at 9.0	00m from	joint 1	
Maximum	ve Ben	ding Moment	-70.536 kH	-m at 3.0	00m from	joint 1	
		BINATION 1	MEMBER 2				
KESONIA	ron con	minution 1	HEMBER 2				
	ion (m)			Bend. Homent	dx	dy	Slope
fro	a End l	(kN)	(kii)	(k)(.m)	(100.)	(mm)	(deg)
Jt. 3	3.000	-35.268	-91.488 -91.488 -91.488 -91.488	-35.268	0.0	0.0	90.000
0.75L	2.250	-35.268	-91.488	-8.817	0.0	0.0	90.004
0.50L	1.500	-35.268	-91.488	17.634	0.1	0.0	90.003
0.25L	0.750	-35.268	-91.488	44.085	0.1	0.0	89.997
Jt. 2	0.000	-35.268	-91.488	70.536	0.0	0.0	89.987
Maximum	tve Ben	ding Moment	70.536 kN	.m at 0.0	00m from	ioint 2	
Maximum	-ve Ben	ding Homent	70.536 kM -35.268 kM	.m at 3.0	00m from	joint 2	_
RESULTS	FOR COM	BINATION 1	MEMBER 3				
Posit	ion (m)	Shear Force	Axial Comp.	Bend . Noment	dz	dv	Slope
fro	m End 1	f lebt s	(101)	(kH, m)	(mm)	(ma)	(deg)
Jt. 5	5.000	-192.025	Axial Comp. (kN) 0.000	-163.695	0.0	-0.1	0.000
		-98.275	0.000	(kN.m) -163.695 17.742	0.0	-0.9	0.054
0.50L	2.500	-4.525	0.000	61.992	0.0	-1.6	0.003
0.25L	1.250	89.225	0.000	29.054	0.0	-1.0	-0.053
Jt. 2	0.000	89.225 182.975	0.000	-141.072	0.0	0.0	
Marriana	Ave Bee	ding Manage	92 128 W		40- 6	inter 2	
Maximum	-we Ber	ding Moment	82.128 kH -163.695 kH	2.4	Our from	joint 2	
CONTINUE	-A6 B60	GING HOMEUL	-103.033 KM	-mat 3.0	OUR LLOS	lorue 5	

•	* EGYPTIAN ENGINEERS	· JOB : PRAME
	*	
		* DATE: 1992
•		*
•	· ARALYSIS RESULTS	*SHEET: 13
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	DESCRIPTION OF THE PROPERTY OF	
RESULTS FOR COMBINATION 1 M		

Position (m)	Shear Porce	Axial Comp. 5	Bend.Moment	ďж	dy	Slope
from End 1	(JcH)	(101)	(kH.m)		(mm) -0.1	(deg)
Jt. 5 3.000	-0.467	(k#) 166.519 - 166.519	-0.934	0.0	-0.1	90.000
0.75L 2.250	-0.467	" 166.519	-0.584	0.0	0.0	90.000
0.75L 2.250 0.50L 1.500	-0.467	166.519	-0.934 -0.584 -0.234 0.117	0.0	0.0	98.000
0.25% 0.750	-0.467	166-519	0.117	0.0	0.0	90.000
Jt. 4 0.000	-0.467	166.519 166.519 166.519 166.519	0.467	0.0	0.0	90.000
Maximum +ve Ber Maximum -ve Ber	ding Moment	0.467 kW.s	at 0.000m	from	joint 4	
Maximum -ve Ber	ding Moment	-0.934 kM.s	at 3.000m	from	joint 4	
RESULTS FOR COP	BINATION 1	MEMBER 5				
Position (m)	Shear Force	Axial Comp. I	Bend. Homent (kW.m)	dx	dy	Slope
from End 1	(kw)	Odla	(3x8.m)	(mm)	(mm)	(deg)
Jt. 6 3.000	-0.467	-166.519	-0.467	0.0	0.0	90.000
0.75L 2.250	-0.467	-166.519	-0.117	0.0	0.0	90.000
0.50% 1.500	-0.467	-166.519	0.234	0.0	0.0	90.000
0.25% 0.750	-0.467	-166.519	0.584	0.0	0.0	90.000
from End 1 Jt. 6 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000	-0.467	-166.519	0.934	0.0	-0.1	90.000
Maximum +ve Ber	ding Moment	0.934 kH.s	at 0.000m	from	ioint 5	
Maximum +ve Ber Maximum -ve Ber	ding Moment	-0.467 kN.	at 3 000m	from	joint 5	
					,	
RESULTS FOR CON	BINATION 1	HENRER 6				
Position (m) from End 1 Jt. 8 7.000 0.75L 5.250 0.50L 3.500 0.25L 1.750	Shear Force	Axial Comp. I	Bend . Moment	dx	dy	Slope
from End 1	(JeH)	(1410)	(kH.m)	(mm)	(Mm)	(deg)
Jt. 8 7.000	-138.987	0.000	-158.469	0.0	0.0	0.006
0.75L 5.250	-68.987	0.000	23.508	0.0	-1.8	0.074
0.50L 3.500	1.013	0.000	82.984	0.0	-3.1	-0.001
0.25L 1.750	71.013	0.000	19.961	0.0	-1.8	~0.075
Jt. 5 0.000	141.013	0.000	-163.563	0.0	-0-1	0.000
Maximum +ve Ber	ding Moment	82.997 kH.s	e at 3.525m	from	joint 5	
Maximum +ve Ser Maximum -ve Ser	ding Moment	-165.563 kM.s	n at 0.000m	from	joint 5	
RESULTS FOR COR	BINATION 1	MEMBER 7				
Panisian int	Ohaan Taasa	A-1-1 0	hand many			
footcion (m)	dimer Loice	Axial Comp. 1	James - man	ax	dy	этоба
from End 1 Jt. 8 3.000	()(8)	(108)	(RM.m)	(min)	(10sR)	(deg)
				0.0	0.0	90.006
0.75L 2.250	16.134	121.656	20.168	0.0	0.0	90.001
0.500 1.500	16.134	121.656	8.067	0.0	0.0	89.998
0.50L 1.500 0.25L 0.750 Jt. 7 0.000	16.134	121.656	-4.034	0.0	0.0	89.998
Jt. 7 0.000	16.134	121.656	-16.134	0.0	0.0	90.000
Maximum +ve Ber	ding Homent	32.269 km.	at 3.000m	from	inint ?	
Maximum +ve Ber Maximum -ve Ber	ding Moment	-16.134 kM.s	at 0.000m	from	inint 7	
			9.000		Jozate /	

*	* EGYPTIAN ENGINEERS	* JOB : FRAME
*		***************************************
•	* FOR COMPUTERS (E E C)	* DATE: 1992
•	* 190 EL SUDAN ST. MOHAMDESSIN	*

· A H A L V S I S R E S U L T S ·SHEET:

* ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 8 | Position (m) | Shear Force | Axial Comp. | Bend.Noment | dx | dy | Slope | from End | (kH) | (kH) | (kH.m) | (mm) | (am) | (deg) | (cl. 9 | 3.00 | 16.134 | -121.656 | 16.134 | 0.0 | 0.0 | 90.001 | (7.50 | 1.500 | 16.134 | -121.656 | -40.04 | 0.0 | 0.0 | 89.938 | (7.500 | 1.500 | 1.61.34 | -121.656 | -20.168 | 0.0 | 0.0 | 90.001 | (7.500 | 1.500 | 1.61.34 | -121.656 | -20.168 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.61.34 | -121.656 | -32.259 | 0.0 | 0.0 | 90.001 | (7.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.50 Jt. 9 3.000 0.75% 0.50L 0.25L Jt. 8 Maximum +ve Bending Moment 16.134 kW.m at 3.000m from joint 8 Maximum -ve Bending Moment -32.269 kN.m at 0.000m from joint 8 DESULTS FOR COMBINATION 1 MEMBER 9
 Position (m)
 Shear Force (kis)
 Axial Comp. (kis)
 Bend. Moment
 dx
 dy
 Slope (ms)

 f. 10
 5.000
 -95.675
 0.000
 -72.205
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 -72.205
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 0.0 Jt. 11 5.000 0.75L 3./30 2.500 0.25L 1.250 Jt. 8 0.000 Maximum +ve Bending Moment 42.116 kH.m at 2.608m from point 8 Haximum -ve Bending Moment -93.931 kH.m at 0.000m from joint 8 RESULTS FOR COMBINATION 1 MEMBER 10
 Position (m)
 Shear Force from End 1
 Axial Comp.
 Bend Moment (kM)
 dx
 dy
 Slope (mm)
 dq
 dy
 Slope (mm)
 dq
 dy
 Slope (mm)
 dq
 dy
 Slope (mm)
 dq
 dq
 Slope (mm)
 Jt. 11 3.000 0.75L 0.50L 0.25L Jt. 10 0.000 Maximum +ve Bending Homent 36.152 kN.m at 3.000m from joint 10 Maximum -ve Bending Homent -18.076 kN.m at 0.000m from joint 10 RESULTS FOR COMBINATION 1 MEMBER 11 Maximum eve Bending Homent 18 076 kM m at 2.000m from joint 11 Maximum --- Bending Homent --36.152 kM.m at 0.000m from joint 11

<u>f</u>	* EGYPTIAN ENGINEERS	* JOB : FRAME
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•	* 190 EL_SUDAM ST., MOHANDESSIN * A R A L Y S I S R E S U L T S	*SHEET: 15
	puter and Design Services Limited	
RESULTS FOR COMBINATION 2	HENBER 1	
Position (m) Shear Force	Axial Comp. Bend. Homent (MH m) (mm) (5.925 -3.215 0.645.925 -20.759 0.645.925 4.152 0.645.925 4.152 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.6408 0.645.925 1.945.	dy Slope
from End 1 (kW)	(KH) (KH.m) (mm)	(mm) (deg)
757 2 350 -16.608	46 076 -20 760 0 0	0.0 00.994
1.507. 1.500 -16.608	45 925 _9 304 0.0	0.0 90.002
251. 0.750 -16.608	45 925 4 157 0 0	0.0 90.002
Jt. 1 0.000 -16.608	45.925 16.608 0.0	0.0 90.000
Maximum -ve Bending Moment	16.608 kM.m at 0.000m from -33.215 kM.m at 3.000m from	joint 1
RESULTS FOR COMBINATION 2	MEMBER 2	
Position (m) Shear Force	Axial Comp. Bend. Homent (kil) (kil) (sm) (sm) (sm) (45.925 -16.608 0.6 -45.925 -4.152 0.6 -45.925 0.759 0.6 -45.925 33.215 0.6	dv Slope
from End 1 (kN)	(kH) (kN-m) (mm)	(mm) (dea)
7t. 3 3.000 -16.608	-45.925 -16.608 0.0	0.0 90.000
0.75L 2.250 -16.60B	-45.925 -4.152 0.0	0.0 90.002
0.50L 1.500 -16.608	-45.925 8.304 0.0	0.0 90.002
D.25L 0.750 -16.608	-45.925 20.759 0.0	0.0 89.999
Jt. 2 0.000 -16.608	-45.925 33.215 0.0	0.0 89.994
Maximum +ve Bending Homent Maximum -ve Bending Homent	33.215 kN.m at 0.000m from -16.600 kN.m at 3.000m from	joint 2
RESULTS FOR COMBINATION 2		
Position (m) Shear Force	Axial Comp. Bend. Homent di	dy Slope
from Eng 1 (RM)	(KH) (KH·m) (mm)	(mm) (deg)
Jt. 5 5.000 -108.151	0.000 ~107.183 0.0	~0.1 -0.018
7./5L J./50 -58.151	0.000 -3.245 0.0	-0.3 0.024
0.30L 2.300 -8.151	0.000 30.193 0.0	-0.7 0.005
7.256 1.250 41.849	0.000 17-132 0.0	-0.5 -0.023
20. 2 0.000 91.849	Axial Comp. Bend. Homent di (MB) (MB) 1 (MB) 3 (MB) 1 (MB	0.0 -0.006
Maximum +ve Bending Moment Haximum -ve Bending Moment	39.024 kH.m at 2.296m from -107.183 kH.m at 5.000m from	joint 2
RESULTS FOR COMBINATION 2	HEPHER 4	
Position (m) Shear Porce	Axiel Comp. Bend.Homent di (NR) (NR) (mm. 185.325 -95.734 0.1 185.325 -59.834 -0.1 185.325 -23.934 -0.1 185.325 11.967 0.0	dy Slope
from End 1 (kW)	(kH) (kH,m) (mm)	(mm) (deg)
Tt. 5 3.000 -47.867	185.325 -95.734 0.0	-0.1 89.982
0.75L 2.250 -47.867	185.325 -59.834 -0.1	-0.1 89.997
0.50L 1.500 -47.867	185.325 -23.934 -0.1	0.0 90.005
0.25L 0.750 -47.867	185.325 11.967 0.6	0.0 90.006
7t. 4 0.000 -47.867	185.325 47.867 0.0	0.0 90.000
	47.867 kN.m at 0.000m from	

								*	003
			* POF	PT CHIP	TERS (MONAND	C)	DATE: 1	992
			* A N	ALY	SIS	RES	ULTS	•SHEET:	16
amar.s	ISE ICAC	opyright Comp	mter a	ul Desi	an Ser	vices I	imited 1	985	
ESULTS	POR COM	BINATION 2	HENBER	5					
Posit:	ion (m)	Shear Force (kH) -47.867 -47.867 -47.867 -47.867	Axial	Comp.	Bend.	Moment	dx	dy	Slope
from	a End 1	(kH)		(kN)		(kN.m)	(mm)	(mm)	(deg
3t. 6	3.000	-47.867	-18	35.325	-	47.867	0.0	0.0	90.000
0.75L	2.250	-47-867	-11	15.325	-	11.967	0.0	0-0	90.00
0.50L	1.500	-47.867	-11	85.325		23.934	0.1	0.0	90.00
0.25L	0.750	-47.867	-11	85.325		59.834	0.1	-0.1	89.99
Jt. S	0.000	-47.867	-18	85.325		95.734	0.0	-0.1	89.98
Maxiasa	tve Ben	ding Moment	95	.734 ki	i.m at	0.00	Om from	joint 5	
Maximum -	-ve Ben	ding Moment	-47	.867 ki	I.m at	3.00	Om from	joint 5	
results	FOR CON	BINATION 2	MEMBER	6					
Posit.	ion (m)	Shear Porce (kM) -262.500 -131.250 0.000 131.250 262.500	Axial	Comp.	Bend.	Noment	dx	dy	Slop
from	m End 1	(kH)		(kH)		(kif.m)	(mm)	(min.)	(deg
Jt. 8	7.000	-262.500		0.000	-2	98.652	0.0	-0.1	0.01
0.75L	5.250	-131.250		0.000		45.879	0.0	-3.6	0.14
0.50L	3.500	0.000		0.000	1	60.723	0.0	-6.2	0.00
0.25L	1.750	131.250		0.000		45.879	0.0	-3.6	-0.14
Maximum	tve Ber	ding Moment ding Moment	160	.723 ki	f.m at	3.5	Om from	joint 5	
Maximum	-ve Ber	ding Moment	-298	.652 ki	d.m at	0.0	DOM IFOM	301ut 2	
resul, ts	FOR CON	BINATION 2	MEMBER	7					
Posit	ion (m)	Shear Force (kN) 47.867 47.867 47.867 47.867	Axial	Comp.	Bend.	Moment	dx	dy	Slop
fro	m End 1	(lest)		(kii)		(KN.m)	(==)	(==)	(deg
Jt. 8	3.000	47.867	1	85.325		95.734	0.0	-0.1	90.01
0.75L	2.250	47.867	1	85.325		59.834	0.1	-0.1	90.00
0.50L	1.500	47.867	1	85.325		23.934	0.1	0.0	89.99
0.25L	0.750	47.867	1	85.325	-	11.967	0.0	0.0	89.99
Jt. 7	0.000	47.867	1	85.325	-	47.867	0.0	0.0	90.00
Maximum	+ve Ber	nding Moment nding Moment	95	.734 k	f.m at	3.0	00m from	joint 7	
					H.M at	0.0	OUM IFOM	joint 7	
		GINATION 2							
Posit	ion (m)	Shear Force (kW) 47.867	Axial	Comp.	Bend.	Moment	dx	dy	Slop
fro	e End 1	(lclf)		(kill)		{kH.m}	(sm)	(mm)	(deg
									90.00

0.75L 0.50L 0.25L Jt. 8	2.250 1.500 0.750 0.000	47.867 47.867 47.867 47.867	-185.325 -185.325 -185.325 -185.325	11.967 -23.934 -59.834 -95.734	0.0 -0.1 -0.1 0.0	0.0 -0.1	89.994 89.995 90.003 90.018
	+ve Bending -ve Bending		47.867 kN.m = -95.734 kN.m =			joint 8 joint 8	

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			* FOR COMPU	TERS (E E C)	· DATE: 1	992
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				SISRESU			
·							
AHAL	ARE (C)	Copyright Comp	outer and Desig	n Services Lis	nited	1985	
		BINATION 2					
Posit	ion (m)	Shear Force	Axial Comp.	Bend . Homent	dx	dy	Slop
fro	m End 1	(kW)	(kiii)	(kH·m)	(100)	(mm)	(deg
t. 11	5.000	-91.849	0.000	-66.430	0.0	0.0	0.00
.75L	3.750	-41.849	0.000	17.132	0.0	-0.5	0.02
.50L	2.500	8.151	0.000	(kW.m) -66.430 17.132 38.193 -3.245	0.0	-0.7	-0.00
-25L	1.250	58.151	0.000	-3.245	0.0	-0.3	-0.02
t. 8	0.000	108.151	0.000	-107.183	0.0	-0.1	0.01
		add on Monant	28 024 be	2 704-		4-4-6	
	-ve Ber	ding Moment	_107 193 km	m at 2.704s	. from	joint 8	
		dang recent	-10.1200 80			JOING 0	
		Sheer Force	h-1-1 0	Bend. Noment	de	du	e lor
fro	m Rnd 1	()(10)	Challa	(kW.m)	(mm)	/ mm \	(den
fro t. 11	Bnd 1	(kH)	(kil)	(kW.m)	(mm)	(mm)	(deg
t. 11	a End 1 3.000 2.250	(kH) 16.608 16.608	(kil) 45.925 45.925	(kN.m) 33.215 20.759	(mm) 0.0	(mm) 0.0	90.00
fro t. 11 .75L	a End 1 3.000 2.250 1.500	(kH) 16.608 16.608	(kil) 45.925 45.925 45.925	(kN.m) 33.215 20.759 8.304	0.0 0.0	(mm) 0.0 0.0	90.00 90.00
fro t. 11 .75L .50L	2.250 1.500 0.750	(km) 16.608 16.608 16.608	(kil) 45.925 45.925 45.925 45.925	(kN.m) 33.215 20.759 8.304	0.0 0.0 0.0	(mm) 0.0 0.0 0.0	90.00 90.00 90.00 89.99
fro t. 11 .75L .50L .25L	8nd 1 3.000 2.250 1.500 0.750	(kM) 16.608 16.608 16.608 16.608	(kil) 45.925 45.925 45.925 45.925	(kW.m) 33.215 20.759 8.304 -4.152 -16.608	0.0 0.0 0.0	(mm) 0.0 0.0 0.0	90.00 90.00 90.00 89.99 89.99
fro 1.75L 1.50L 1.25L 1.10	2.250 1.500 0.750 0.000	(hm) 16.608 16.608 16.608 16.608	(kil) 45.925 45.925 45.925 45.925 45.925	(kH.m) 33.215 20.759 8.304 -4.152 -16.608	0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0	90.00
t. 11 .75L .50L .25L t. 10	e End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber	(kH) 16.608 16.608 16.608 16.608 16.608 Iding Moment	(kh) 45.925 45.925 45.925 45.925 45.925 33.215 km -16.608 km	(kN.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000m m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 0.0 joint 10	90.00
fro 1.75L 1.50L 1.25L 1.25L 1.10 1.25L	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber	(kH) 16.608 16.608 16.608 16.608 16.608 Iding Moment	(kH) 45.925 45.925 45.925 45.925 45.925 33.215 kM -16.608 kM	(kN.m) 33.215 20.759 8.304 -4.152	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 0.0 joint 10	90.00
t. 11 .75L .50L .25L t. 10 aximum aximum aximum	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 aximum aximum aximum	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 Aximum Aximum ESULTS	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 Aximum Aximum ESULTS	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 aximum aximum aximum	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 Aximum Aximum ESULTS	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
t. 11 .75L .50L .25L t. 10 Aximum Aximum ESULTS	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COM	(kH) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 Mding Moment	(kil) 45.925 45.925 45.925 45.925 45.925 33.215 kN -16.608 kH.	(RR.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000s m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10	
fro t. 11 .75L .50L .25L t. 10 aximum aximum esuLTS Posit fro t. 12 .75L .50L .25L t. 11	m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber -ve Ber 3.000 2.250 1.500 0.750 0.000	(kij) 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608 16.608	(ki) 45,925 45,925 45,925 45,925 45,925 33,215 kN -16,600 kM MESHBER 11 Axial Comp(kii) -65,925 -65,925 -65,925 -65,925	(kN.m) 33.215 20.759 8.304 -4.152 -16.608 m at 3.000m m at 0.000m	(mm) 0.0 0.0 0.0 0.0 0.0 m from a from (xm) 0.0 0.0 0.0	(mm) 0.0 0.0 0.0 0.0 0.0 joint 10 joint 10 (mm) 0.0 0.0 0.0	Slop (deg 90.00 89.99 90.00 90.00

POSITION (m) Shear Force Axial Comp. Bend.Hommint dx dy Slope from End (kH) (kN m). (mm) (mm) (deg) Jr. 2 3.000 -33.623 89.606 -67.647 0.0 0.0 89.987 0.751 2.250 -33.623 89.606 -42.279 -0.1 0.0 89.987 0.251 1.500 -33.623 89.606 -42.279 -0.1 0.0 89.987 0.251 1.500 -33.623 89.606 -42.279 -0.1 0.0 90.003 0.251 0.750 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -33.623 89.606 8.456 0.0 0.0 90.004 Jr. 1 0.000 -30.623 Jr. 2 0.000 J				UNIONALEEEEE				
Maximum -ve Bending Moment								
Maximum -ve Bending Moment	Posit	ion (=)	Shear Porce	Brinl Comp	Band Howard	4.	du.	Flore
Maximum -ve Bending Moment	fra	Prof 1	SHEEL FOLCE	werer comb.	Application of the second	(X	((dea)
Maximum -ve Bending Moment	Jr. 2	3.000	-33.823	89 606	-67 647	0.0	0.0	80 987
Maximum -ve Bending Moment	0 751.	2 250	-33.023	99.606	-42 279	-0.1	0.0	90 000
Maximum -ve Bending Moment	0.501.	1.500	-33 823	99 606	-16 912	-0.1	0.0	90 003
Maximum -ve Bending Moment	0.25%	0.750	_33 823	89 606	0.456	0.0	0.0	90.003
Maximum -ve Bending Moment	32 1	0.000	-33 823	89 606	11 821	0.0	0.0	96.000
** BCYPTIAN ENGINEERS ** JOB: FRAME ** POR COMPUTERS (E E C) ** DATE: 1992 ** 190 EL SUDAN ST., MOHANDESSIN ** ** AN ALYS IS R ES ULT S **SHEET: 18 ** ANALYSE (C)COPYRIGHT COMPUTER and Design Services Limited 1985 RESULTS FOR COMBINATION] MEMBER 2 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) (kN.m. m) (mm) (deg) JL. 3 3.000 -33.023 -89.606 -3.3.023 0.0 0.90.000 0.751 2.250 -33.023 -89.606 16.512 0.1 0.0 90.000 0.751 2.250 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 67.647 0.0 89.988 JL. 2 0.000 -33.023 -89.606 67.647 0.0 89.989 Maximum +ve Bending Moment 67.647 kN.m at 0.000m from joint 2 RESULTS FOR COMBINATION 3 MEMBER 3 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) JL. 5 0.000 -195.788 0.000 -176.734 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 JL. 5 0.000 -195.788 0.000 7.461 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 0.251 1.250 85.662 0.000 30.127 0.0 -1.0 -0.009 1L. 2 0.000 179.212 0.000 -175.213 0.0 0.0 0.001								
** BCYPTIAN ENGINEERS ** JOB: FRAME ** POR COMPUTERS (E E C) ** DATE: 1992 ** 190 EL SUDAN ST., MOHANDESSIN ** ** AN ALYS IS R ES ULT S **SHEET: 18 ** ANALYSE (C)COPYRIGHT COMPUTER and Design Services Limited 1985 RESULTS FOR COMBINATION] MEMBER 2 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) (kN.m. m) (mm) (deg) JL. 3 3.000 -33.023 -89.606 -3.3.023 0.0 0.90.000 0.751 2.250 -33.023 -89.606 16.512 0.1 0.0 90.000 0.751 2.250 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 67.647 0.0 89.988 JL. 2 0.000 -33.023 -89.606 67.647 0.0 89.989 Maximum +ve Bending Moment 67.647 kN.m at 0.000m from joint 2 RESULTS FOR COMBINATION 3 MEMBER 3 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) JL. 5 0.000 -195.788 0.000 -176.734 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 JL. 5 0.000 -195.788 0.000 7.461 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 0.251 1.250 85.662 0.000 30.127 0.0 -1.0 -0.009 1L. 2 0.000 179.212 0.000 -175.213 0.0 0.0 0.001	Maximum	4ve Ben	ding Homent	33.823 km	-m. at 0.000m	from	inint 1	
** BCYPTIAN ENGINEERS ** JOB: FRAME ** POR COMPUTERS (E E C) ** DATE: 1992 ** 190 EL SUDAN ST., MOHANDESSIN ** ** AN ALYS IS R ES ULT S **SHEET: 18 ** ANALYSE (C)COPYRIGHT COMPUTER and Design Services Limited 1985 RESULTS FOR COMBINATION] MEMBER 2 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) (kN.m. m) (mm) (deg) JL. 3 3.000 -33.023 -89.606 -3.3.023 0.0 0.90.000 0.751 2.250 -33.023 -89.606 16.512 0.1 0.0 90.000 0.751 2.250 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 61.612 0.1 0.0 90.003 0.251 0.750 -33.023 -89.606 67.647 0.0 89.988 JL. 2 0.000 -33.023 -89.606 67.647 0.0 89.989 Maximum +ve Bending Moment 67.647 kN.m at 0.000m from joint 2 RESULTS FOR COMBINATION 3 MEMBER 3 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kN) JL. 5 0.000 -195.788 0.000 -176.734 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 JL. 5 0.000 -195.788 0.000 7.461 0.0 -0.1 -0.012 0.751 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 0.251 1.250 85.662 0.000 30.127 0.0 -1.0 -0.009 1L. 2 0.000 179.212 0.000 -175.213 0.0 0.0 0.001	Maximum	-ve Ben	ding Moment	-67.647 kH	.m at 3.000m	from	ioint 1	
* EXPIRABLE SHOTMERS							*****	
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* EXPIRABLE SHOTMERS								
* FOR COMPUTERS (E E C) * *DATE: 1992 * 190 EL SUDAN ST., MUNICOSAN * A N A L Y S I S R E S U L T S *SHEET: 18 * ARALYSE (C)COPYTIGHT COMPUTER and Design Services Limited 1985 **RESULTS FOR COMBINATION 3 MEMBER 2 **Position (m) Shear Force from End 1 (km) (km) (km.m) (mm) (mm) (deg) Jt. 3 3.000 -33.023 -89.606 -33.023 0.0 0.0 90.000 0.751 2.250 -33.023 -89.606 -8.456 0.0 0.0 90.000 0.501 1.500 -33.023 -89.606 -8.456 0.0 0.0 90.000 0.501 1.500 -33.023 -89.606 16.912 0.1 0.0 89.988 Jt. 2 0.000 -33.023 -89.606 67.647 0.0 0.0 89.987 **Maximum +ve Bending Moment for 67.647 km.m at 0.000m from joint 2 **RESULTS FOR COMBINATION 3 MEMBER 3** **Fostion (m) Shear Force Force Raxim Available (km) (km) (km.m) (mm) (mm) (deg) **Fostion (m) Shear Force Raxim Available (km) (km) (km) (mm) (deg) **Fostion (m) Shear Force Shear F								
* FOR COMPUTERS (E E C) * *DATE: 1992 * 190 EL SUDAN ST., MUNICOSAN * A N A L Y S I S R E S U L T S *SHEET: 18 * ARALYSE (C)COPYTIGHT COMPUTER and Design Services Limited 1985 **RESULTS FOR COMBINATION 3 MEMBER 2 **Position (m) Shear Force from End 1 (km) (km) (km.m) (mm) (mm) (deg) Jt. 3 3.000 -33.023 -89.606 -33.023 0.0 0.0 90.000 0.751 2.250 -33.023 -89.606 -8.456 0.0 0.0 90.000 0.501 1.500 -33.023 -89.606 -8.456 0.0 0.0 90.000 0.501 1.500 -33.023 -89.606 16.912 0.1 0.0 89.988 Jt. 2 0.000 -33.023 -89.606 67.647 0.0 0.0 89.987 **Maximum +ve Bending Moment for 67.647 km.m at 0.000m from joint 2 **RESULTS FOR COMBINATION 3 MEMBER 3** **Fostion (m) Shear Force Force Raxim Available (km) (km) (km.m) (mm) (mm) (deg) **Fostion (m) Shear Force Raxim Available (km) (km) (km) (mm) (deg) **Fostion (m) Shear Force Shear F				* EGIPTIAN E	MCINEENS		* JUB : !	KAME
**				- FOR COMPE			A DAGE. 1	202
** A N A L Y S I S R E S U L T S ** SHEET** 18 ** ANALYSE (C)COPYTIGHT COMPUTER and Design Services Limited 1985 **RESULTS FOR COMBINATION 3 MEMBER 2 **Position (m) Shear Force from End 1 (km) (km) (km, m) (mm) (mm) (deg) **Jt. 3 3.000 -33.823 -89.606 -3.823 0.0 0.0 90.000 0.751 2.250 -33.823 -89.606 -8.456 0.0 0.0 90.000 0.501 1.500 -33.823 -89.606 16.912 0.1 0.0 90.001 0.251 0.750 -33.823 -89.606 42.279 0.1 0.0 89.988 **Jt. 2 0.000 -33.823 -89.606 67.647 0.0 0.0 89.987 **Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2 **RESULTS FOR COMBINATION 3 MEMBER 3 **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope **Position (m) Shear Force A	-			+ IAA BY CURP	TERES (E E C	7	" DATE: 1	772
** ARALTSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 3 NEMBER 2** **Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End (km)				- 190 EL_SUL	na st., mudamuça	D 1 M	************	3.0
*** ANALYSE** (C)COPYIGH** Computer and Design Services Limited 1985** **RESULTS** FOR COMBINATION 3 NEMBER 2 **Position (m) Shear Force (kH) (kH) (kH.m.) (mm) (mm) (deg) (mm) (mm) (deg) (mm) (mm) (deg) (mm) (mm) (mm) (deg) (mm) (mm) (mm) (mm) (mm) (mm) (mm) (m				ANNTI	SISKESU	LTS	"SHEET:	18
RESULTS FOR COMBINATION MEMBER 2								
Position (m) Shear Force	ANAL	ISE (C)C	opyright comp	outer and Desi	du geratces rim	ited .	1882	
Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope From End 1 (km) (kN.m.) (km.m.) (km.m.) (deg1 (km.m.) (km.m.) (km.m.) (km.m.) (deg2 (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (deg2 (km.m.) (km.m.) (km.m.) (km.m.) (km.m.) (deg3 (km.m.) (k					*****			244822224
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2								
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	Boois	ion (-)	Chang Rayes	Avial Com	Bond Monant	-	des	61000
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	PUSIC	TOU (m)	SHEET LOICE	writer comb.	Berga . Homen c	U.X	dy	aroba
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	IFO	m cud I	(((((((((((((((((((((KN)	(KN·M)	(300)	(1000)	(deg)
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	Jt. 3	3.000	-33.823	-89.606	-33.823	0.0	0.0	90.000
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	0.75L	2.250	-33.823	-89.606	-8.456	0.0	0.0	90.004
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	0.50L	1.500	-33.823	-89.606	16.912	0.1	0.0	90.003
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	0.25L	0.750	-33.823	-89.606	42.279	0.1	0.0	89.998
Maximum +ve Bending Moment 67.647 km.m at 0.000m from joint 2	Jt. 2	0.000	-33.823	-89.606	67.647	0.0	0.0	89.987
RESULTS FOR COMBINATION 3 MEMBER 3 Fosition (m) Shear Force								
RESULTS FOR COMBINATION 3 MEMBER 3 Fosition (m) Shear Force	Maximum	+ve Ben						
RESULTS FOR COMBINATION 3 MEMBER 3 Fosition (m) Shear Force			ding Moment	0/.04/ KB	-m ac 0.000m	EFOR	joint 2	
Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope from End (kH) (kH) (kH) (kH.m.) (mm) (deg) (deg) Jt. 5 5.000 -195.788 0.000 -176.734 0.0 -0.1 -0.012 0.755 3.750 -102.038 0.000 9.408 0.0 -0.8 0.051 0.550 2.550 -8.288 0.000 78.361 0.0 -1.5 0.005 0.255 1.250 85.462 0.000 30.127 0.0 -1.0 -0.049 Jt. 2 0.000 179.212 0.000 -135.294 0.0 0.0 -0.013	Maximum	-ve Ben	ding Moment	-33.823 kB	.m at 3.000m	from	joint 2	
					.m at 3.000m	from	joint 2	
					.m at 3.000m	from	joint 2 joint 2	
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
Maximum -ve Bending Moment 78.819 kN.m at 2.389m from joint 2 Maximum -ve Bending Moment -176.734 kM.m at 5.000m from joint 2	RESULTS	POR COM	BINATION 3	MENBER 3	~~~~~			
Haximum -ve Bending Homent -176.734 kH.m at 5.000m from joint 2	Posit fro Jt. 5 0.75L 0.50L 0.25L Jt. 2	FOR COM ion (m) m End 1 5.000 3.750 2.500 1.250 0.000	Shear Force (km) -195.788 -102.038 -8.288 85.462 179.212	HEMBER 3 Axial Comp. (kif) 0.000 0.000 0.000 0.000 0.000	Bend. Howent (kH.m) ~176.734 9.408 78.361 30.127 -135.294	dx (mm) 0.0 0.0 0.0	dy (mm) -0.1 -0.8 -1.5 -1.0	Slope (deg) -0.012 0.051 0.005 -0.049 -0.013
The second secon	Posit fro Jt. 5 0.75L 0.50L 0.25L Jt. 2	FOR COM ion (m) m End 1 5.000 3.750 2.500 1.250 0.000	Shear Force (km) -195.788 -102.038 -8.288 85.462 179.212	HEMBER 3 Axial Comp. (kif) 0.000 0.000 0.000 0.000 0.000	Bend. Howent (kH.m) ~176.734 9.408 78.361 30.127 -135.294	dx (mm) 0.0 0.0 0.0	dy (mm) -0.1 -0.8 -1.5 -1.0	Slope (deg) -0.012 0.051 0.005 -0.049 -0.013
	Posit fro Jt. 5 0.75L 0.50L 0.25L Jt. 2	FOR COM ion (m) m End 1 5.000 3.750 2.500 1.250 0.000	Shear Force (km) -195.788 -102.038 -8.288 85.462 179.212	HEMBER 3 Axial Comp. (kif) 0.000 0.000 0.000 0.000 0.000	Bend. Howent (kH.m) ~176.734 9.408 78.361 30.127 -135.294	dx (mm) 0.0 0.0 0.0	dy (mm) -0.1 -0.8 -1.5 -1.0	Slope (deg) -0.012 0.051 0.005 -0.049 -0.013

dx

(-0)

-0.1

(kH.m) -63.394

-39.622

dy Slope

(mm) (deg) -0.1 89.988 -0.1 89.998

RESULTS FOR COMBINATION 3 NEMBER 4

0.75L

2.250

(kM) -31.697 -31.697

| Position (m) | Shear Force | Axial Comp. | Bend.Homent | from End | (kM) | (kM) | (kM m) |

(kil) 229.651 229.651

Maximum +ve Bending Homent 31.697 kH.m at 0.000m from joint 4	0.50L 0.25L Jt. 4	1.500 0.750 0.000	-31.697 -31.697 -31.697	229.651 229.651 229.651	-15.849 7.924 31.697	0.0	0.0	90.004
Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope From End (x (x (x x) (x				31.697 kN.m -63.394 kF.m	at 0.000m	from	joint 4 joint 4	
from End 1 (kil) (kil) (kil) (mm) (mm) (deg) (fr. 6).000 -31.697 -229.651 -31.697 0.0 0.0 0.0 0.000 0	RESULTS	FOR COMBIN	ATION 3 I	CEMBER 5				
	from It. 6).75L).50L).25L It. 5	2.250 1.500 0.750 0.000 +ve Bendin	(kH) -31.697 -31.697 -31.697 -31.697 -31.697	(kN) -229.651 -229.651 -229.651 -229.651 -229.651 -229.651 63.394 kN.m	(kn.m) -31.697 -7.924 15.849 39.622 63.394 at 0.006m	(mm) 0.0 0.0 0.1 0.1 0.0	(mm) 0.0 0.0 0.0 -0.1 -0.1 joint 5	(deg) 90.000 90.004 90.003 89.998
	y Alkanini da			* EGYPTIAN ENG	WERS	*****	*************************	RAME
* EXPPLIE ENGINEES * JOB : FRANC	* • •			.*	S { E E C	SIM	* DATE: 1	992

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•				AM ST., HOHANDES			
				SIS RESU			
ANAL	YSE (C)C			on Services Lis			

RESULTS	FOR COM	BINATION 3	MEMBER 6				
Positi	ion (a)	Shear Force	Axial Comp.	Bend . Homest	dx	dv	Slope
Enne	n End 1	(b-m)	(kill)	/ lest . m \			(deg
rt. 8	7.000	-261.487	0.000	-296.428	0.0		0.01
.751	5.250	-130.237	0.000	46.330			0-14
.50L	3.500	1.013	0.000	159.400	0.0	-6.1	
.25L	1.750	132.263	0.000	42.782 -303.522	0.0	-3.5	-0.14
It. 5	0.000	-130.237 1.013 132.263 263.513	0.000	-303.522	0.0	-0.1	-0.01
4axisum	tve Ben	ding Moment	159.407 km	.m at 3.514m	from	ioint 5	
Maximum.	-ve Ben	ding Moment	-303.522 kM	.m at 0.000m	from	joint 5	
		BINATION 3					
	ion (m)		Axial Comp.		dx		Slope
from	a End 1	(kH)	(kjii)	(kH.m)	(mm)	(mun)	(deg
t. 8	3.000	47.365	184.788	94.729	0.0	-0.1	
.75L	2.250	47.365	184.788	- 59.206	0.1	-0.1	
.50L	1.500	47.365	184.768	23.682 -11.841	0.1	0.0	
	0.750	47.365	184.788	-11.841	0.0	0.0	
t. 7	0.000	47.365	184.788	-47.365	0.0	0.0	90.00
aximum	tve Ben	ding Moment	94.729 kN	.m at 3.000m	from	joint 7	
tav i men	-une Bern	ding Moment	-A7 765 be	- at 0 000-	-	2-1-4 7	

RESULTS FOR COMBINATION 3 MEMBER 8

Fosition (6 from End Jt. 9 3.00 0.75L 2.25 0.50L 1.50 0.25L 0.75 Jt. 6 0.00	1 (kH) 00 47.365 60 47.365 00 47.365 60 47.365	(kN) -184.788 -184.788 -184.788	lend Noment (kN.m) 47.365 11.841 -23.682 -59.206 -94.729	0.0 0.0 0.0 -0.1 -0.1	0.0	Slope {deg} 90.000 89.994 89.996 90.003 90.018
Maximum -ve l	Sending Moment	47.365 kM.u -94.729 kM.u			joint 8 joint 8	
	COMBINATION 3	NEMBER 9				
Position (s			Send. Homent	dx		Slope
		(kli)	(kH.m)	(mm)		
Jt. 11 5.00		0.000	-66.527	0.0	0.0	
0.75% 3.75		0.000	17.113	0.0		
0.50L 2.50		0.000	38.252	0.0		-0.005
0.25L 1.25		0.000	-3.109	0.0	-0.3	-0.025
Jt. 8 0.00	108.089	0.000	-106.970	0.0	-0.1	0.018
	Bending Moment				joint 8	
Maximum -ve	Bending Moment	~106.970 kN.s	n at 0.000m	from	joint B	

*			* EGYPTIAN E	MGINEERS		* JOB : F	RAHE
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Positio	on (m) End 1	Shear Force	Axial Comp.	Bend.Homent (kM.m)	dx (ma)	dy	Slope (deg)
Jt. 11	3.000		45.956	33.263	0.0	(mm.)	90.006
0.75%	2.250	16.632	45.956	20.790	0.0		90.001
0.50L	1.500	16.632	45.956	8.316	0.0		89.998
0.25L	0.750	16.632	45.956	-4.158	0.0	0.0	89.998
Jt. 10	0.000	16.632	45.956	-16.632	0.0	0.0	90.000
			33.263 kM -16.632 kM			joint 10 joint 10	
RESULTS	POR COM	BINATION 3	MEHBER 11	*************			
Positio			Axial Comp.	Bend . Homent	dx	dy	Slope
	End 1	(1;11)	(kH)	(kH.m)	(mm)		(deg)
Jt. 12					0.0	0.0	90.000
		16.632			0.0		89.998
0.50L	1.500	16.632	-45.956	-8.316	0.0	0.0	89.998

						90.001
0.25L 0.750	16.632	-45.956	-20.790	0.0	0.0	
Jt. 11 0.000	16.632	~45.956	-33.263	0.0	0.0	90.006
		-		_		
Maximum +ve Bendir	ng Moment	16.632 kW.s	at 3.000m			
Maximum -ve Bendin	ng Moment	-33.263 kM.m	at 0.000m			

RESULTS FOR COMBIN	NATION 4	HENBER 1				
Position (m) Si	hear Force	Axial Comp. B	end.Moment	dx	dy	Slope
from End 1	(kH)	(kH)	(kN.m)	(mm)	(===)	(deg)
Jt. 2 3.000	-33.848	89.637	-67.695	0.0		89.987
0.75% 2.250	-33.846	89.637	-42.309	-0.1		89.998
0.50L 1.500	-33.848	89.637	-16.924	-0.1		90.003
0.25L 0.750	-33.848	89.637	8.462	0.0		90.004
Jt. 1 0.000	-33.848	89.637	33.848	0.0	0.0	90.000
Maximum +ve Bendi	nor Moment	33.848 kW.m	at 0.000m	from	joint 1	
Maximum +ve Bendi Maximum -ve Bendi					joint 1	
Maximum +ve Bendi Maximum -ve Bendi	ng Moment	-67.695 kW.m				
Maximum -ve Bendi	ng Moment	-67.695 kW.m				
Maximum -ve Bendi RESULTS FOR COMBI	ng Moment	-67.695 kN-s MEMBER 2			joint 1	Slope
Maximum -ve Bendi RESULTS FOR COMBI	MATION 4	-67.695 kN-s MEMBER 2	at 3.000m	from	joint 1	(deg)
RESULTS FOR COMBINE Position (m) S	ng Moment	-67.695 kW.s MEMBER 2 Axial Comp. F	at 3.000m	dx (mm) 0.0	joint 1 dy (mm) 0.0	(deg)
Maximum -ve Bendin RESULTS FOR COMBIN Position (m) S from End 1	MATION 4 bear Force (kH)	-67.695 kW.s MEMBER 2 Axial Comp. E (kW)	e at 3.000m Bend.Homent (kH.m)	dx (mm) 0.0 0.0	joint 1 dy (mm) 0.0	(deg) 90.000 90.004
Haximum -ve Bendic RESULTS FOR COMBIN Position (m) S from End 1 Jt. 3 3,000	MATION 4 bear Force (kH) -33.848	-67.695 kW.s MEMBER 2 Axial Comp. F (kN) -89.637 -89.637	e at 3.000m Send.Homent (kN.m) -33.848	dx (mm) 0.0 0.0 0.1	dy (mm) 0.0 0.0 0.0	(deg) 90.000 90.004 90.003
Haximum -ve Bending RESULTS FOR COMBINE Position (m) Software End 1 Jt. 3 3.000 0.75L 2.250	MATION 4 bear Force (km) -33.848 -33.848	-67.695 kW.s MEMBER 2 Axial Comp. F (kN) -89.637 -89.637	end.Homent (kN.m) -33.848 -8.462	dx (mm) 0.0 0.0 0.1	dy (mm) 0.0 0.0 0.0 0.0	(deg) 90.000 90.004 90.003 89.998
Maximum -ve Bendie RESULTS FOR COMBII Position (m) Si from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500	MATION 4 bear Force (km) -33.848 -33.848 -33.848	-67.695 kW.s MEMBER 2 Axial Comp. F (kN) -89.637 -89.637 -89.637	Bend. Homent (kN.m) -33.848 -8.462 16.924	dx (mm) 0.0 0.0 0.1	dy (mm) 0.0 0.0 0.0 0.0	(deg) 90.000 90.004 90.003
Maximum -ve Bendix RESULTS POR COMBIN From End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.75D Jt. 2 0.000 0.75L 2.000 0.75L 0.000 0.75L 0.000	MATION 4 bear Force (km) -33.848 -33.848 -33.848 -33.848 -33.848	-67.695 kM.s MEMBER 2 Axial Comp. (kN) -89.637 -89.637 -89.637 -89.637 -89.637	Bend. Homent (kN.m) -33.846 -8.462 16.924 42.309 67.695	dx (mm) 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0 0.0	(deg) 90.000 90.004 90.003 89.998
Harimum -ve Bendi RESULTS FOR COMBI From End 1 Jt. 3 3.000 0.75L 2.280 0.50L 1.500 0.25L 0.750 Jt. 2 0.000 Maximum +ve Bendi	mg Moment MATION 4 bear Force (kW) -33.848 -33.848 -33.848 -33.848	-67.695 kN.s MEMBER 2 Axial Comp. E (kN) -89.637 -89.637 -89.637 -89.637 67.695 kH.s	a at 3.000m Send. Homent (kH.m) -31.848 -8.462 16.924 42.309 67.695 a at 0.000m	dx (mm) 0.0 0.1 0.1 0.0 from	dy (mm) 0.0 0.0 0.0 0.0 joint 2	(deg) 90.000 90.004 90.003 89.998
Harium -ve Bendix RESULTS FOR COMES! Position (m) S from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.75D Jt. 2 0.000	mg Moment MATION 4 bear Force (kW) -33.848 -33.848 -33.848 -33.848	-67.695 kM.s MEMBER 2 Axial Comp. (kN) -89.637 -89.637 -89.637 -89.637 -89.637	a at 3.000m Send. Homent (kH.m) -31.848 -8.462 16.924 42.309 67.695 a at 0.000m	dx (mm) 0.0 0.1 0.1 0.0 from	dy (mm) 0.0 0.0 0.0 0.0	(deg) 90.000 90.004 90.003 89.998

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RESULTS FOR COMBIN	ATION 4 MEMBE	R 3				EHV####
			Bend Noment	dx	dy	Slope
from End 1 Jt. 5 5.000 0.75L 3.750	(kH) -195.726 -101.976	(kH) 0.000 0.000	(kH.m) -176.520 9.544	0.0 0.0	-0.1	(deg) -0.012 0.051
0.50L 2.500 0.25L 1.250	-8.226		78.420	0.0	-1.5	0.005
Jt. 2 0.000	179.274	0.000	-135.390	0.0	0.0	-0.013
Maximum +ve Bendir Maximum -ve Bendir		8.871 km. 6.520 km.		from jo		

RESULTS FOR COMBINATION 4 MEMBER 4

Maximum -ve Ber	ding Moment	Axial Comp. Bend.Moment dx dy Si (kW) (kW.m) (mm) (mm) (229-113 -62.399 0.0 -0.1 89 229-113 -38.993 -0.1 -0.1 89 229-113 -38.993 0.0 0.0 90 229-113 31.195 0.0 0.0 90 31.195 kW.m at 0.000m from joint 4 -62.389 kW.m at 0.000m from joint 4	
RESULTS FOR COM	BINATION 4	MEMBER 5	
Position (m) from End 1 Jt. 6 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000	Shear Force (km) ~31.195 ~31.195 ~31.195 ~31.195 ~31.195	Axial Comp. Hend.Homent dx dy S (48) (18) (18) (18) (19) (19) (19) (19) (19) (19) (19) (19	lope deg) .000 .004 .003 .998
Maximum +ve Ber	ding Moment	62.389 kN.m at 0.000m from joint 5 -31.195 kM.m at 3.000m from joint 5	
Maximum -ve Ber	ding Moment	-31.195 kM.m et 3.000m from joint 5	
RESULTS FOR CO			
Position (m) from End 1 Jt. 8 7.000 0.75L 5.250 0.50L 3.500 0.25L 1.750 Jt. 5 0.000	Shear Force (kB) -262.500 -131.250 0.000 131.250 262.500	Axial Comp. Bend.Homent dx dy S (kH) (kH.m) (mm) (mm) (mm) (mm) (mm) (mm) (mm) (lope deg; .012 .143 .000 .143
Maximum +ve Ber Maximum -ve Ber	nding Moment	158.077 kN.m at 3.500m from joint 5 -301.298 kN.m at 0.000m from joint 5	
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Position (m) from End 1	Shear Force (kW)	Axial Comp.	Bend Homent	dx (==)	dy (mm)	Slope (deg)
Jt. 8 3.000	31.195	229-113	62.389	0.0	-0.1	90.012
0.75L 2.250	31.195	229.113	38.993	0.1	-0.1	90.002
0.50L 1.500	31.195	229.113	15.597	0.1	0.0	89.997
0.25L 0.750	31.195	229.113	-7.799	0.0	0.0	89.996

Jt. 7	0.000		31.	195	22	9.1	3	-:	31.1	95	0.0	0	.0	90.000
Maximum Maximum	+ve Be	nding nding	Home Home	nt nt	62. -31.	389 195	k#.m k#.a	at at	3	.000m	from from	joint joint	7	
RESULTS														
Positi	lon (m)	She	ar Po	rce	Axial	Comp	p. B	end.	Home		dx		dy	Slope
	End 1			kW)	-22	(ki	f)		(kH.	m) .95	(mm)	(=	-)	(deg) 90-000
Jt. 9	3.000)	31.	195	-22	29.1	1.3		31.1	95	0.0	0	0.0	90.000
0.75L	2.250	1	31.	195	-23	29.1	13		7.7	99	0.0		.0	89.996
0.50L	1.500)	31.	195	-22	29.1	1.3	_	15.5	97	-0.1		.0	89.997
0-25L	0.750)	31.	195	-23	29.1	13	-	38.5	193	-0.1	-0	1.1	90.002
Jt. 9 0.75L 0.50L 0.25L Jt. 0	0.000)	31.	195	-23	29.1	1.3	-	62.3	189	0.0	-(1	90.012
Maximum Maximum														
Mezimum	-AS B	ending	Nome	mt	-62	. 389	kii . m	at		-000m	from	joint	8	
RESULTS														
Posit	ion (m)	She	ar Fo	rce	Axial	Com	p. 8	end.	Home	ent	dx		dу	Slope
from Jt. 11	End !			k#)		(10	if)		(kN.	m)	(mm)	(1	ma)	(deg)
Jt. 11	5.00)	-179.	274		0.0	00	-1	35.3	190	0.0	(0.0	0.013
0.75L	3.750		-85.	524		0.0	00		30-1	80.	0.0	-1	1.0	0.049
0.50L	2.500		8.	226		0.0	00		78.4	120	0.0	-	1.5	-0.005
0.25L	1.25		101.	976		0.0	00		9.5	544	0.0	-(3.6	-0.051
0.75L 0.50L 0.25L Jt. 8	0.00)	195.	726		0.0	00	-1	76-	520	0.0	-1	1.1	0.012
Maximum	tve Br	mdina	Home	mt	78	.071	kH.s	at	:	2.610m	from	joint	8	
Hazimum	-ve Be	mding	Home	ent	-176	.520	kill.st	at	- (0.000m	from	joint	8	
RESULTS														
Pomit	ion (m	She	ar Fo	rce	Axial	Com	p. B	end.	Mount	ent	dж		dy	Slope
from	m End	1		(kiii)		(k	N)		(kN	.m}	(mm)	(1	om)	(deg)
Jt. 11	3.00)	33.	848		89.6	37		67.0	595	0.0	- 1	3.0	90.013
0.75L	2.25		33.	848		89.6	37		42.3	309	0.1	- 1	0.0	90.002
	1.50)	33.	.846		89.6	37		16.5	924	0.1		0.0	89.997
0.50L	0.75)	33.	848		89.6	37		-8.4	162	0.0		0.0	89.996
0.50L 0.25L							27		22 1	40				90.000
0.50L 0.25L Jt. 10	0.00)	33.	. 648		87.0		_	.33-0	940	0.0	,	3.0	30.000
from Jt. 11 0.75L 0.50L 0.25L Jt. 10	0.000	•	33.	. 648										

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RESULTS FOR COMBINATION 4 MEMBER 11

Position (m) Shear Porce	Axial Comp. Bend. Moment	dx dv Slone
from End 1 (kH)	(30F) (30F-m)	(mm) (mm) (deg)
Jt. 12 3.000 33.848	Axial Comp. Bend. Moment (kW m) -89.637 33.848 -89.637 8.462 -89.637 -16.924 -89.637 -42.309 -89.637 -67.695	0.0 0.0 90.000
0.75L 2.250 33.848	-89.637 8.462	0.0 0.0 89.996
0.50L 1.500 33.848	-89.637 -16.924	-0.1 0.0 89.997
0.256 0.750 33,848	-89.637 -42.309	-0.1 0.0 90.002
Jt. 11 0.000 33.848	-89.637 -67.695	0.0 0.0 90.013
Maximum +ve Bending Moment	33.848 kN.m at 3.000m	from inint 11
Maximum -ve Bending Moment	-67.695 kM.m at 0.000m	from joint 11

RESULTS FOR COMBINATION 5	MEMBER 1	
Position (m) Shear Force	Axial Comp. Bend. Homent (kH.m) 91.519 -70.584 91.519 -17.646 91.519 8.023 91.519 35.292	dy dy Slone
from Red 1 (bit)	/hm) /hm /hm	(mm) (dea)
Th 2 2 000 -35 303	0) 510 20 584	(100) (100)
A 751 3 350 35 303	91.319 -70.384	0.0 0.0 89.987
0.756 2.250 -35.292	91.519 -44.115	-0.1 0.0 89.99/
0.306 2.300 -33.292	91.519 -17.646	-0.1 0.0 90.003
0.251 0.750 -35.292	91.519 8.823	0.0 0.0 90.004
JE. 1 0.000 -35.292	91.519 35.292	0.0 0.0 90.000
Maximum +ve Bending Moment	35.292 kN.m.at 0.000m	from joint 1
Maximum -ve Bending Moment	35.292 kN.m at 0.000m -70.584 kN.m at 3.000m	from joint 1
		*
RESULTS FOR COMBINATION 5	HEHBER 2	
Position (m) Shear Force	Axial Comp. Bend.Moment	dx dy Slope
from End 1 (kN)	(kH-m)	(mm) (deq)
Jt. 3 3.000 -35.292	-91.519 -35.292	0.0 0.0 90.000
0.75L 2.250 -35.292	-91.519 -8.623	0.0 0.0 90.004
0.50L 1.500 -35.292	Axial Comp. [kis]	0.1 0.0 90.003
0.25L 0.750 -35.292	-91.519 44.115	0.1 0.0 89.997
Jt. 2 0.000 -35.292	-91.519 70.584	0.0 0.0 89.987
	-311313	0.0 0.00
Maximum +ve Bending Moment	70.584 bH.m at 0.000m	from injut 2
Maximum -ve Bending Moment	70.584 kH.m at 0.000m -35.292 kH.m at 3.000m	from inint 2
THE PARTY OF THE P	-33.132 KM.B CC 3.000M	ELOM JOZNE Z
RESULTS FOR COMBINATION 5		
Position (s) Shear Porce	Axial Comp. (kH) (kH.m) 0.000 (kH.m) 0.000 17.878 0.000 82.050 0.000 29.035 0.000 -141.168	du du class
from End 1	/bit china	ten uy stope
74 6 5 000 101 001	(KH) (KH-M)	(see) (see) (deg)
0 757 3 750 -191.983	0.000 -163.481	0.0 -0.1 0.000
0.736 3.730 -98.213	0.000 17.878	0.0 -0.9 0.054
0.300 4.300 -4.463	0.000 82.050	0.0 -1.7 0.003
U.43L 1.430 89.287	0.000 29.035	0.0 -1.0 -0.053
JE. 2 0.000 183.037	0.000 -141.168	0.0 -0.013
maximum +ve Bending Moment	82.183 kN.m at 2.440m -163.481 kN.m at 5.000m	from joint 2
Maximum -ve Bending Moment	-163.481 kN.m at 5.000m	from joint 2

PRESENCE AND ADDRESS OF THE PROPERTY OF THE PR		*************
•	• EGYPTIAN ENGINEERS	* JOB : FRAME
*		*
•	* FOR COMPUTERS (E E C)	* DATE: 1992
•	* 190 EL SUDAN ST., MOHAMDESSIN	*

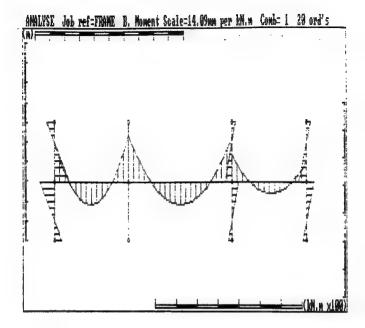
* A W A L V S I S R E S U L T S *SHEET: 24 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION S MEMBER & Position (m) Shear Force Axial Comp. Bend. Homent dx from End 1 (kH) (kH) (kH) (kH.m) (mm) 0.00 0.036 165.981 0.071 0.0 0.75L 2.255 0.036 165.981 0.044 0.0 dy Slope dy Slope (mmt) (deg) -0.1 90.000 0.0 90.000 Jt. 5 0.75L 0.036 165.981 0.044 0.036 165.981 0.018 0.036 165.981 -0.009 0.036 165.981 -0.036 1.500 0.50L 0.018 -0.009 0.0 0.0 90.000 0.0 0.25L 0.750 0.0 90.000 Jt. 4 0.000 0.0 0.0 90.000 Maximum +ve Bending Moment 0.071 kM.m at 3.000m from joint 4 Maximum -ve Bending Moment -0.036 kM.m at 0.000m from joint 4 RESULTS FOR COMBINATION 5 MEMBER 5 Jt. 6 0.036 -165.981 0.036 -165.981 0.036 -165.981 0.036 -165.981 0.75L 1.500 0.750 0.000 -0.018 -0.044 -0.071 0.50% 0.25L 0.0 0.0 90.000 Maximum +ve Bending Moment 0.036 kM.m at 3.000m from joint 5 Maximum -ve Bending Moment -0.071 kM.m at 0.000m from joint 5 RESULTS FOR COMBINATION 5 MEMBER 6
 Fosition (m)
 Shear Force from End 1
 Axial Comp. Bend Homent from End 1
 dx
 dy
 Slope (mm)
 degl (degl (kH) m)

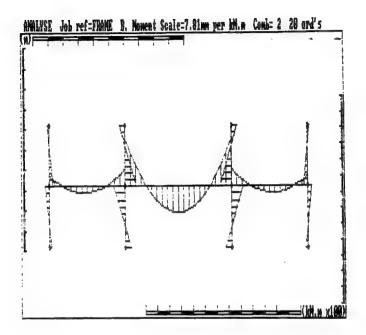
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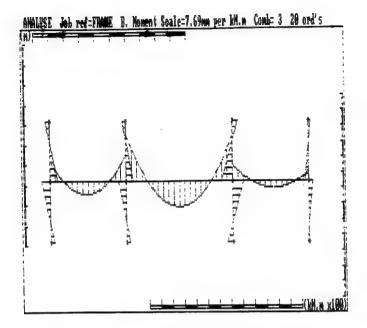
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 -1.7
 0.000
 20.411 -1.7 0.073 -3.0 0.000 0.75L 0.0 0.0 -3.0 0.0 -1.7 -0.073 -0.1 0.000 3.500 0.000 0.000 81.661 0.9 0.000 20.411 0.0 0.000 -163.339 0.0 0.000 70.000 140.000 0.50L 0.50L 3.500 0.25L 1.750 Jt. 5 0.000 Haximum +ve Bending Moment 81.661 kH.m at 3.500m from joint 5 Maximum -ve Bending Moment -163.339 kH.m at 0.000m from joint 5 RESULTS FOR COMBINATION 5 MEMBER 7

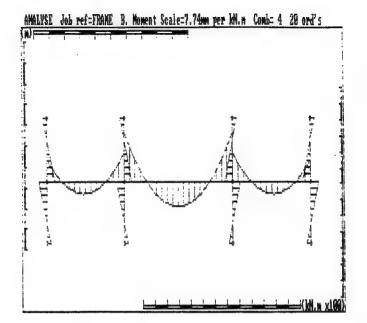
Position (a from End Jt. 8 3.00 0.75L 2.25 0.50L 1.30 0.25L 0.75 Jt. 7 0.00	1 (kN) 10 -0.036 10 -0.036 10 -0.036 10 -0.036	Axial Comp. 1 (138) 165.981 165.981 165.981 165.981 165.981	Bend. Homent. (klr.m) -0.071 -0.044 -0.018 0.009 0.036	dx (=) 0.0 0.0 0.0 0.0	dy (mm) -0.1 0.0 0.0 0.0	Slope (deg) 90.000 90.000 90.000 90.000
	Mending Homent Mending Homent	0.036 km.s -0.071 km.s				

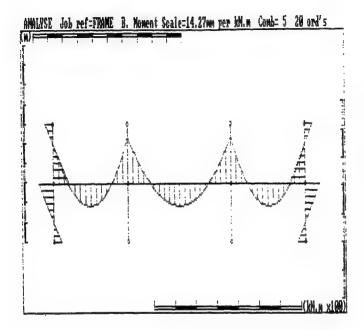
		* ECTIVIAN =			. JOB : PR	AME
,		* FOR COMPU	PERS / PERC		DATE: 19	92
		* 190 EL_SUD	AM ST., HOHANDES	SIN	*SRRET:	25
ARALYSE (C)C	Opyright Comp	uter and Design	gn Services Lis	nted 1	1965 1986-200	*****
ESULTS FOR COM	BINATION 5	MEMBER 0				
Position (m)	Shear Force	Axial Comp.	Bend - Homent	dx	dy (****) 0.0 0.0	Slope
from End 1	(kH)	(kH) -165.981 -165.981	(kH.m) -0.036 -0.009	(mm)	(1000)	(deg)
7t. 9 3.000	-0.036	-165.981	-0.036	0.0	0.0	90.000
0.75L 2.250	-0.036	-165.981	-0.009	0.0	0.0	90.000
0.50L 1.500	-0.036	-165.981	0.018	0.0	0.0	90.000
1.251. 0.750	-0.036	-165.981	0.044	0.0	0.0	90.000
0.75L 2.250 0.50L 1.500 0.25L 0.750 7t. 8 0.000	-0.036	-165.981	0.071	0.0	0.0 0.0 -0.1	90.000
					ioint 8	
Maximum +ve Ben Maximum -ve Ben	ding Moment	-0.036 kM	.m at 3.000	s from	joint 8	
LESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend . Moment	dx	dy	Slope
from End 1	(3:00)	(300)	(kW.m) -141.168 29.035 82.050	(mm)	(mm)	(deg)
** 11 6 000	-183 037	0 000	-141 168	0.0	0.0	0.013
Ft. 11 5.000 0.75L 3.750	80 207	0.000	79 075	0.0	-1.0	0.062
7.732 3.730	-09.207	0.000	27.033	0.0	-1.0	0.033
0.50L 2.500	4.463	0.000	82.050	0.0	-1.7	-0.003
0.50L 2.500 0.25L 1.250 Jt. 8 0.000	98.213	0.000	17.878	0.0	-0.9 -0.1	0.000
Kaximum +ve Ben Kaximum -ve Ben	nding Moment	92.183 kW -163.481 kW	.m at 2.360	a from	joint 8	
	BINATION 5	MEMBER 10				
RESULTS FOR COM	BINATION 5	MEMBER 10				
Position (m)	BINATION 5	MEMBER 10				
Position (m)	Shear Force	MEMBER 10 Axial Comp.				
Position (m)	Shear Force	MEMBER 10 Axial Comp.	Bend.Homent (kW.m) 70.584	dx (==)	dy (xm) 0.0	
Position (m)	Shear Force	MEMBER 10 Axial Comp.	Bend.Homent (kW.m) 70.584	dx (==)	dy (xm) 0.0	Slope (deg) 90.013
Position (m) from End 1 from End 1 fr. 11 3.000 0.75L 2.250 0.50L 1.500	Shear Force (km) 35.292 35.292 35.292	MEMBER 10 Axial Comp. (kW) 91.519 91.519 91.519	Bend. Homent (kW·m) 70.584 44.115 17.646	dx (==) 0.0 0.1 0.1	dy (zm) 0.0 0.0 0.0	Slope (deg) 90.013 90.003
Position (m) from End 1 Jt. 11 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750	Shear Force (km) 35.292 35.292 35.292 35.292	MEMBER 10 Axial Comp. (kW) 91.519 91.519 91.519	Bend. Homent (kW·m) 70.584 44.115 17.646	dx (==)	dy (zm) 0.0 0.0 0.0	Slope (deg) 90.01: 90.00: 89.99:
Position (m) from End 1 Jt. 11 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 10 0.000	Shear Force (km) 35.292 35.292 35.292 35.292 35.292	MEMBER 10 Axial Comp. (kil) 91.519 91.519 91.519 91.519 91.519	Bend. Homent (kW.m) 70.584 44.115 17.646 -8.823 -35.292	dx (==) 0.0 0.1 0.1 0.0	dy (amm) 0.0 0.0 0.0 0.0	Slope (deg) 90.01: 90.00: 89.99:
from End 1 Jt. 11 3.000 0.75L 2.250 0.59L 1.500 0.25L 9.750 Jt. 10 0.000 Heximum +ve Ben Maximum -ve Ben	#BINATION 5 Shear Force {km} 35.292 35.292 35.292 35.292 adding Moment	MEMBER 10 Axial Comp. (kM) 91.519 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend-Homent (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 a from	dy (xm) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Slope (deg) 90.01; 90.00; 89.99; 89.996
Position (m) from End 1 Jt. 11 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 10 0.000	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	Axial Comp. (kin) 91.519 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend-Homent (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 a from	dy (xm) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Slope (deg) 90.01; 90.00; 89.99; 89.996
Position (m) from End 1 1t. 11 3.000 0.75L 2.250 0.25L 1.500 0.25L 0.750 1. 10 0.000 Maximum +ve Ben BERRIETS FOR COP Position (m)	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (deg 90.01: 90.00: 89.99: 89.99: 90.000
Position (m) from End 1 1t. 11 3.000 0.75L 2.250 0.59L 1.500 0.25L 0.750 0.25L 0.750 0.25L 0.750 Maximum +ve Ber Maximum -ve Ber	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (deg) 90.01: 90.00: 89.99: 90.00:
Position (m) from End 1 1t. 11 3.000 0.75L 2.250 0.59L 1.500 0.25L 0.750 0.25L 0.750 0.25L 0.750 Maximum +ve Ber Maximum -ve Ber	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (deg) 90.01: 90.00: 89.99: 90.00:
Position (m) from End 1 1t. 11 3.000 0.75L 2.250 0.59L 1.500 0.25L 0.750 0.25L 0.750 0.25L 0.750 Maximum +ve Ber Maximum -ve Ber	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (dag) 90.01; 90.00; 89.99; 90.000 Slope (dag
Position (m) from End 1 1t. 11 3.000 0.75L 2.250 0.59L 1.500 0.25L 0.750 0.25L 0.750 0.25L 0.750 Maximum +ve Ber Maximum -ve Ber	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (deg 90.01: 90.00: 89.99: 90.00: Slope (deg 90.00: 89.99:
Position (m) From End 1 ft. 11 3.000 0.75L 2.250 0.25L 0.750 0.25L 0.750 0.25L 0.750 deximum +ve Ber Meximum -ve Ber	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend.Moment (kW.m) 70.584 44.115 17.646 -8.823 -35.292 .m at 3.000 .m at 0.000	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (dag 90.01: 90.00: 89.99: 90.00: Slope (dag 90.00: 89.99:
Position (m) from End 1 1c. 11 3.000 1.751 2.250 1.501 1.500 1.251 0.750 1.251 0.750 1.251 0.800 1.251 0.750 1.251 0.800 1.251 0.750 1.251 0.800 1.251 0.750 1.251 0.800 1.251 0.750 1.251 0.800 1.251 0.750 1.251 0.800 1.251	Shear Porce (km) 35.292 35.292 35.292 35.292 35.292 dding Moment	AXIA1 COMP. (kin) 91.519 91.519 91.519 91.519 70.584 km -35.292 km	Bend Moment (kW .m) 70.584 44.115 17.646 -8.223 -35.292 .m at 0.000 Bend Moment (kW .m) 35.292 .8.23 -17.646 -44.115	dx (mm) 0.0 0.1 0.1 0.0 0.0 m from	dy (xm) 0.0 0.0 0.0 0.0 0.0 joint 10	Slope (dag 90.01: 90.00: 89.99: 90.00: Slope (dag 90.00: 89.99: 89.99: 89.99:



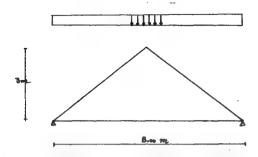








مثال : كما بالرسم أطار هيكلى (Frame) وعليه الأحمال المضحة DL = 4 t/m', LL = 3 t/m'



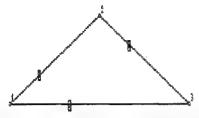
- ندخل أحداثيات نقاط المنشأ وكذلك أعضائه وجالة الوصلات كالتالي:

Joint	X(m)	Y(m)
1	0	0
2	4	3
3	8	0

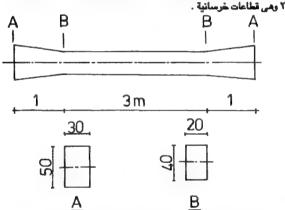
Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con
I	1	F	2	F
2	2	F	3	F
3	1	р	3	P

- تم ترصيف العضورةم (٢) على أنه (Steel tie)

- نضغط [D] لشاهدة رسم النشأ كالأتي :

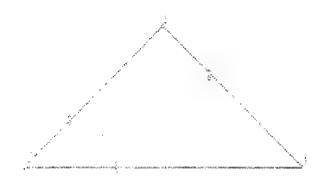


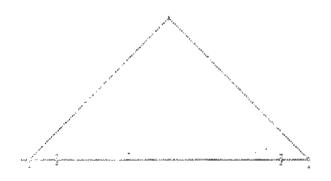
- نبخل خصائص قطاعات واعضاء النشأ (Properties) كما بالرسم للأعضاء ١ ،



 $\frac{\Delta}{100}$ أما العضو الثالث فهو شداد على هيئة سيخ حديدى مساحته = 10, 10 سم $^{\circ}$.

ويتم ادخال تلك البيانات باستخدام المناصر [Elements] وذلك للاعضاء ٢ ، ٢ مع تعريفها على أنها غير منتظمة المقطع (Non Prismatic) أما العضو الثالث فيمكن ادخال المساحة وعزم القصور مباشرة في جنول القطاعات (Table of sections) ويراعى انخال قيمة معامل ينج الخرسانة للاعضاء ١ ، ٢ والعديد العضورةم ٢ .





Tab	le of Section	1	Mer	nber	Section Pr	ropertie	s
Secti	ion Area	Inertia	No. of	Men	Member	No. Se	c. Modulus E
No	(cm2)	(cm4)	Element	s No	Length N/	P Seg N	o. (N/mm2)
1	1500.000	312500.00	1	1	5.000 n		1
2	800.000	106666.67	1				
3	0.000						
			:	Segn	ent (s) of	Membe	r 1
				Seg.	Segment	Sectio	n No .
			1	No.	Length	End1	End2
				1	1.000	1	2
			:	2	3.000	2	2
				3	1.000	2	1

Tab	ole of Section		Member Section Properties						
Sect	ion Area	Inertia	No. of	Mem	Member	No. Sec.	Modulus E		
No	(cm2)	(cm4)	Elements	No.	Length N/P	Seg No.	(N/mm2)		
1	1500.000	312500.00	1	1	5.000 N	3	21000.000		
2	800.000	106666.67	1	2	5.000 N	3	21000.000		
3	19.650	36.66	0	3	8.000 p	1 3	210000.000		
4									

ندخل بيانات الركائز Supports كما بالجنول:

Joint	Support	X Restraint	Y Restraint	A Restraint
1	Hinge	Full	Full	Zero
3	Roller	Zero	Full	Zero

- تبخل اسماء الأهمال (Load Case names)

- 1- Dead Load
- 2 Live Load

- ند خل قيم الاحمال الموزعة بانتظام على الاعضاء ١ ، ٢ كالاتي :

Dead Load UV 40 KN/m

Live Load UV 30 KN/m

- تدخل هالات التحميل وهي هالة واحدة للحمل الميت والحي على الاعضاء ١٠٢٠.
 - نضغط [٩] ثم [٧] للبدء في الحل فتظهر خطوات الحل تباعا على الشاشة .
 - تظهر بيانات وبتائج المنشأ كلها كالاتي :

Joint	positions	
Jt.	% coord	Y coord
No.	(m)	(m)
1	0.000<	0.000
2	4.000	3.000
3	8.000	0.000
- 10		

Fl F2 Help Calc	F6 Top	F7 Up	Down	Commad	Bottom Escap		is ON
2 2 2		no. 2	Jat X con F F	Coord (m) 4.000 8.000	Y2 Coord (m) 3.000 0.000	Length (m) 5.000 5.000 8.000	\$lope (deg) 36.870 -36.870

Input mode

řl	F2	P6	F?	F8	P9	F10	ESC	NUMLOCK
Help	Calc	Top	Up I	Down C	Commad 1	Bottom	Escape	is on
Table Sectio No. 1 2	of Sections n Area (cm2) 1500.000 800.000	Inertia (cm4) 312500.00 106666.67	No. of Elements 1	Hem	Hember Leng	er	roperties No. Sec. Seg No. 3	Modulus E (N/mm2) 21000.000 21000.000

,	19.650	30.66			8 000 P	3		210000.000
3	19.630	30.66	- 4	3	8.000 F	- 4	,	210000.000

Elements of Section no. 1
Elem Y-dim B-dim P-dim
No. (mm) (mm) (mm)
1 0.000 300.000 500.000

Input mode

Fi Help	F2 Calc	P6 Top			F9 mund B	F10 ottom	ESC Escape	BUNLOCK is ON	
	of Sections						roperti		
Section	a Area	Inertia	No. of	Hem	Membe		No. Se		
No.	(cm2)	(cm4)	Blements	No.	Lengt	h H/P	Seg No	. (H/mm2)	
1	1500.000	312500.00	1	1	5.0	00 H	3	21000.000	
2	800.000	106666.67	1	2	5.0	00 H	3	21000.000	
- 1	10 650	20 66			8.0	00	- 1	3 210000 000	

Elements of Section no. 2
Elem Y-dim B-dim D-dim
No. (m) (mm) (mm)
1 0.000< 200.000 400.000

Input mode

F1 F2 Help Calc	F6 Top			9 F10 mnd Bottom	ESC Escape	INMEGEN is on
Table of Sections			Nembez	Section P	roperties	
Section Area	Inertia	No. of	Hem	Hember	No. Sec.	Modulus E
No. (cm2)	{cm4}	Elements	No.	Length #/P	Seg No.	(N/mm2)
1 - 1500.000	312500.00	1	1	5.000 W	3	21000.000
2 800.000	106666.67	1	2	5.000 N	3	21000.000
3 19.650	30.66	0	3	8.000 P	1 3	210000.000

Segment(s) of Member 1 Seg. Segment Section No.

No.	Length	End1	End2
1	1.000	1	2
2	3.000	2	2
- 3	3.000	2	1

F1	F2	F6	27	FB	F9 F10	ESC	HANTOCK
Help	Calc	Top	Up (Down C	numeral Botto	m Escape	is ON
Table	of Sections			Hemb	er Section	Properties	
Sectio	n Area	Inertia	No. of	New	Hember	No. Sec.	Modulus E
No.	(cm2)	(cm4)	Element	s No.	Length B/	P Seg No.	(N/mm2)
1	1500.000	312500.00	1	1	5.000 M	3	21000.000
2	800.000	106666.67	1	2	5.000 M	3	21000.000
3	19.650	30.66	0	3	8.000 P	1 3	210000.000

Segment(s) of Hember 2 Seg. Segment Section No. No. Length End1 End2 1 1.000< 1 2 2 3.000 2 2 3 1.000 2 1

Input mode

	elp	Calc	Top	Up	Down	Commad	Bottom	Escape	is ON
	ports Jnt Pos	X Restraint (kH/mm)	Y Restr		A Restr				
1	1	FULL		FULL		EERO			
2	3	\$ERO		FULL		2ERO			

Input mode

ři Help	F2 Calc		F6 Top	F7 Up	P8 Down	P9 Commind	F10 Bottom	ESC Escape	NUMFOCK
No. 1	LOADS No.of Loads 2	Load: Ld. No.	Load cas Number &	name Dead	Load	Start	Loaded	(kN,	
3	ō	i	-					500	
		Inp	ut mode						

F1 F2 F6 F7 F8 F9 F10 ESC	NUMLOCK
Help Calc Top Up Down Command Bottom Escape	is ON
MEMBER LOADS Loads & moments on Member 2 (length = 5.000m slope	= -36.870deg
Hem No.of Ld. Load case Load Start Loaded (kN, k	N.m or kN/m 1
No. Loads No. Number & name Type Pos(m) Len(m) Start va	
1 2 1 1 Dead Load UV 40.0	
2 2 2 1 ive load UV 30.0	000
3 0	

Input mode

F1 Help	F2 Calc	F6 Top	P7 Up	P8 Down	29 Commd	P10 Bottom	ESC Escape	HUNLOCK is ON
Load Ca		Combination Safety factor	1					

F1 Hel	F2 P Calc	řé Top	F7 Up	F8 Down	P9 Commd	P10 Bottom	ESC Escape	NUMLOCK is ON
		*	BGY	PTIAN EN				JOB : TFRAME
				COMPUTE EL SUDA	RS (E	EC)	* I	DATE: 1992 HEET: 5
AM		right Compute						5

FRANK GEOMETHY

No. of Joints = 3

HEHDERA

!	End 1 Details		End 2 Details	
MuniJt.:C:	X coord : Y	coord :Jt.:C:	X Coord : Y	Coord : Length : Slope
Mo.:no.: :	(m) :	(m) :no.: :	(m) :	(m): (m): (deg)
12-2				
1: 1:F:	0.000 :	0.000 : 2:F:	4.000 z	3.000 : 5.000 : 36.87
2: 2:F:	4.000 :	3.000 : 3:F:	8.000 s	0.000 : 5.000 : -36.87
3: 1:P:	0.000 :	0.000 : 3:P:	8.000 :	0.000 : 8.000 : 0.00

TABLE OF SECTIONS

Section Number	8	Aren: (cm2):	(cm4):	No:	D (mma):	B (zota):	specified) Y (mm)
1	: 1	500.00:	312500.01	1:	500.00:	300.00:	0.00
2	8	800.06:	106666.7:	1:	400.00:	200.002	0.00
3	:	19.65:	30.7:	*			

SUMMARY OF MEMBER PROPERTIES

Member 1 NOW PRISHATIC : Modulus E = 21000.0 N/mm2

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.....
Member 2 NON PRISMATIC : Modulus E = 21000.0 N/mm2
Segment 1 Length = 1.000 m: End 1 Section No. = 1 : End 2 Section No. = 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 2 ... 
                                                                                                                                                    _____
Member 3 PRISHATIC : Section Number 3 : Hodulus E = 210000.0 N/mm2
 KUDDOWES
No. of Supports = 2
     Joint : X Restraint : Y Restraint : Angular Restraint
  Number: (kH/mm): (kH/mm): (kH.m/radian)
         1 : FULL : FULL : SERO
3 : 2ERO : FULL : 2ERO
   -----
                                                               * EGYPTIAN ENGINEERS * JOB : TFRAME
                                                                          _____
                                                               * POR COMPUTERS ( E B C )
                                                                                                                                       * DATE: 1992
                                                                * 190 EL SUDAN ST., MOHANDESSIN
* I N P U T D A T A
                                                                                                                                       *----
                                                                                                                                      *SHEET: 6
                                                                                                                _____
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 APPLIED LOADS AND HOMESTS
 MEMBERS 1 - 2
 LOAD CASE :LOAD: POSITION : LOAD / NOMENT
 No: Name : Type: Start: Length: Start Value: End Value
 l: Dead Load: UV:
2: live load: UV:
                                                                                                    : 40.000 kN/m:
: 30.000 kN/m:
                                                                             4
 COMBINATIONS
                                            : TABULATED VALUES OF PARTIAL SAFETY FACTORS
 LOAD CASE : Combination Number
 *-----
              Dead Load:1.000
live load:1.000
```

Segment 1 Length = 1.000 m: End 1 Section No. = 1 : End 2 Section No. = 2 ... 2 ... 3.000 m: " " 2 : " 2 : " " 2 : " 1.000 m: " " 2 : " 1.000 m: " 1.000 m

7 .

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•	* EGYPTIAN ENGINEERS

•	* FOR COMPUTERS (E E C) * DATE: 1992
•	* 190 EL SUDAN ST., MONANDESSIN *
•	* ANALYSIS RESULTS *SHEET: 7
*	
* ANALYSE (C)Convelobt (Computer and Design Services Limited 1985

RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

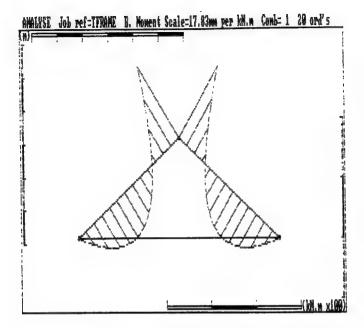
Joint No.	dx(m)	dy (mm)	0(rad)	Px (kH)	Py (kN)	H (kH.m)
1 2	0.00 2.29	0.00 -4.27	-0.0055 0.0000	0.000	280.000	0.000
3	4.59	0.00	0.0055	0.000	280.000	0.000
Summation o	of Forces	and Noment	=			~~~~~~~

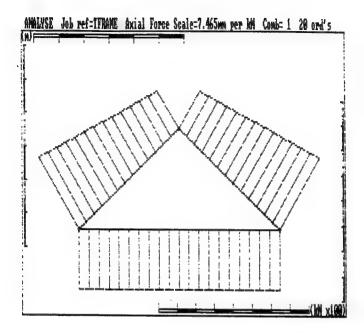
Member Loads	0.000	-560.000	-2240.000
Joint Loads	0.000	0.000	0.000
Renctions	0.000	-560.000	-2240.000
Summation		560.000	2240.000

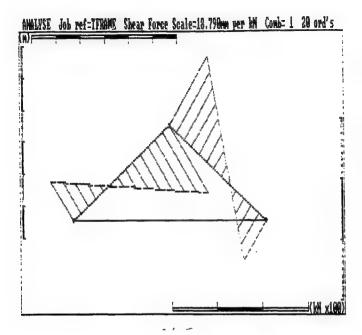
	0.000					
Maxima for Hembe		~				~
Load Shear (kH) Comb. (Abs. Max. 1 -141.92	(Compression) 0 357.227	(Tension) Ma 0.000	75.190 1.	(m) Hax. 832 -14	-ve 19.602.	Pos. (m) 5.000
Maxima for Membe						
Load Shear (kN) Comb. (Abs. Hax. 1 141.92 Haxima for Membe)(Compression) 0 357.227	(Tension) Ma 0.000	75.190 3	(m) Max. 168 -1	-ve 19.602	Pos. (m) 0.000
Load Shear (kN) Comb. (Abs. Max. 1 0.00		(Tension) He 236.534	x.+ve Pos.	(m) Max	0.000	Pos. (m) 0.000
RESULTS FOR COMB	INATION 1 ME	KBER 1				
Position (m) from End 1 Jt. 2 5.000 0.75L 3.750 0.50L 2.500 0.25L 1.250 Jt. 1 0.000	(kH) -141.920 -85.920 -29.920	231-227 273.227 315-227	(kW.m) -149.602 -7.202 65.199 67.599	3.4 4.7	(mm) -4.3 -5.5 -7.0 -5.1	36.997 36.886 36.635

		* EGYPTIAN EM	CIMPERS		· JOB : ?	FRAME
•		. FOR COMPUTE	RS (E E C)		* DATE:	1992
•		* 190 EL_SUDA	M ST., MOHANDE	SSIN	*	
1		* ANALYS	IS RESU	LTS	*SHEET:	
ANALYSE (C)Co	pyright Compu	ster and Desig	n Services Li	mited :	1985	
ESULTS FOR COMB	INATION 1 P	CHBER 2				<i>(</i>)
ESULTS FOR COMB	IMATION 1 *	CEMBER 2 Axial Comp.	Bend Noment	dx	dy	
ESULTS FOR COMB Position (m) from End 1	IMATION 1 P Shear Force (kH)	GENBER 2 Axial Comp.	Bend.Noment.	dx	dy (===)	(deg
ESULTS FOR COMB Position (m) from End 1 t. 3 5.000	IMATION 1 P Shear Force (kM) -82.080	GENBER 2 Axial Comp. (kH) 357.227	Bend. Moment. (kH.m) 0.000	dx (=)	dy (==) 0.0	(deg -36.55
ESULTS FOR COMB Position (m) from End 1 t. 3 5.000 .75L 3.750	IMATION 1 * Shear Force (kM) -82.080 -26.080	GEMBER 2 Axial Comp. (kH) 357.227 315.227	Bend. Moment. (kH.m) 0.000	dx (==) 4.6 1.0	dy (==) 0.0 -5.1	(deg
Position (m) from End 1 (t. 3 5.000 1.75L 3.750 1.50L 2.500 1.25L 1.250	IMATION 1 8 Shear Force (kH) -82.080 -26.080 29.920	EMBER 2 Axial Comp. (kH) 357.227 315.227 273.227 231.227	Bend. Homent (kH.m) 0.000 67.599 65.199 -7.202	dx (==) 4.6 1.0 -0.1 1.2	dy (===) 0.0 -5.1 -7.0 -5.5	-36.55 -36.65 -36.88
ESULTS FOR COMB	IMATION 1 8 Shear Force (kH) -82.080 -26.080 29.920	EMBER 2 Axial Comp. (kH) 357.227 315.227 273.227 231.227	Bend . Noment (km.m) 0.000 67.599 65.199	dx (==) 4.6 1.0 -0.1 1.2	dy (===) 0.0 -5.1 -7.0 -5.5	-36.55 -36.65

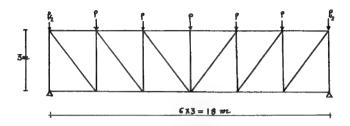
Maximum +ve Bending Moment 75.190 kW.m at 1.832m from joint 1 Maximum -ve Bending Moment -149.602 kW.m at 5.000m from joint 1







مثال: كما بالرسم جمالون حديدي (Truss) وعليه الأهمال المضحة بالرسم:



P(D.L) = 0.72 tP(L.L) = 0.9 t

70 X 70 X 7 mm

60 X 60 X 6 mm

60 X 60 X 60 mm

- قطاع الجمااون كما بالرسم :

- تظهر بيانات ونتائج المنشأ كالاتي :

		-					 -		===			2333		
											٠	JOB	2	TRUSS
*	*						 				 ٠.,			
•											*	DATI	E:	
4	•										٠,			
•		I	10	P	U	T	D	A	T	A	*	SHEE!	£:	16
•								_			 			

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FRAME GROMETRY

No. of Joints = 14

Lamber of the Party of the Part										
1		End 1	Deta:	ils		1		End 2 De	tails	
Mem:Jt	: C:	X cc	ord :	Y	coord	:Jt.	:C:	X Coord	: Y	Coord
No.:no	1 1 -		(m) s		(m)	:no.	: :	(m)	2	(m)
:	-2-2-					1	0~1		-:	
1:	2:P:	0.	000 :		3.000	2 4	:P:	3.000	2	3.000
7 -	4.77.		000 -				-	4 000		2 000

Mem:Jt	- :C:	X coord		Y coord	٤,	Jt.:C:			Y Coord				Slope
No.:no	-11	(m)	\$	(m)	21	no.: :	(m)	2	(m)	:	(m)	2	(deg)
:	-2-2		- : -		- 2 -	:~:-		- 2 -				2-	
1: :	2:P:	0.000	1			4:P:					3.000		0.00
21 4	4:P:	3.000	2	3.000	3	6:P:	6.000	8	3.000	2	3.000		0.00
3: (6:P:	6.000	:	3.000	2	8:P:	9.000	8	3.000	1	3.000		0.00
4 z	0 : P :	9.000	8	3.000	2	10:P:	12.000	2	3.000	2	3.000	8	0.00
	0:P:	12.000		3.000	:	12:P:	15.000	2	3.000	2	3.000	2	0.00
6: 1:	2:P:	15.000	3	3.000	:	14:P:	18.000	2	3.000		3.000	:	0.00
7:	1:P:	0.000	8	0.000			3.000	\$	0.000	3	3.000	8	0.00
	3:P:	3.000		0.000	:		6.000	:	0.000	2	3.000	:	0.00
	5:P:	6.000		0.000				2					0.00
	7:P:	9.000		0.000			12.000	8	0.000	2	3.000	t	0.00
	9:P:	12.000	8			11:P:	15.000	2	0.000		3.000	\$	0.00
12: 1		15.000				13:F:	18.000	2	0.000	2	3.000	1	0.00
13:	1:P:	0.000	8	0.000	2	2:7:	0.000	2	3.000	2	3.000	ŧ	90.00
	3:2:	3.000		0.000			3.000	3	3.000	:	3.000	÷	90.00
	5:P:	6.000		0.000							3.000	z	90.00
	7:P:	9.000		0.000					3.000		3.000		90.00
	9:P:	12.000				10:F:	12.000		3.000		3.000	3	90.00
18: 1		15.000				12:P:	15.000		3.000		3.000	z	90.00
19: 1		18.000				14:F:	18.000						90.00
	2:P:	0.000		3.000			3.000		0.000	2			-45.00
	4 : P :	3.000	3	3.000	:	5:P:	6.000	1	0.000	8	4.243	:	-45.00
	6:Pr	6.000		3.000				1	0.000	2	4.243	ı	-45.00
	7:P:	9-000	2			10:P:	12.000	:	3.000	=	4.243	\$	45.00
24:	9:2:	12.000	2	0.000	2	12:P:	15.000	2	3.000		4.243	٠	45.00
25: 1	1:P:	15.000	:	0.000	2	14:P:	18.000	:	3.000	3	4.243	2	45.00
-			181		Paul	****			********	-		40.1	it in man mar man day may specify a

TABLE OF SECTIONS

imper	: Area: : (cm2):	Inertia: (cm4):	Rectang	slar Eleme (sea): B	nts (if (mm):	specifi .Y (mm)		
1	: 18.80:	84.8						
2	: 13.82:	45.6		:				
	OF MEMBER)							
	1 - 6 PRISM			or 1 . Mo	Anlus E	- 2100	00.0 1/-	2
	7 – 25 PRIS							
			*				- JUB :	IRUDO
,			•				* DATE:	
•			•					
•			. 1	HPUT	DA 1	A	*SHEET:	17
*		-1-2-		Danie 600		4-40-4		
	YES 1515				ATCHR T		. 743	
AMAL	YSE (C)Copy	ridut comb	nter end			*****		
		right Comp				********		
OPPORT	5				*******	********		
SUPPORT						*********		
to. of	Supports =	2						-
iUPPORT	Supports =	2	traint :	Angular i	lm#trni:	ıt.		
Mo. of Joint Number	Supports = : X Restra : (kW/m	2 int:YRm	straint :	Angular i	hestrais 'radian	it.		
OFFORT To of Joint Humber	Supports = : X Restra : (kW/m	2 int:YRm	straint :	Angular i	hestrais 'radian	it.		
SOPPORT: So. of : Joint Humber 1	Supports = 2 % Restra 5 (kW/m 2 PULL 5 PULL	2 int:YRm m): (i	straint : kW/sm) :	Angular i	destrair /radian	it.		
Joint Rumber	Supports = 2 % Restra 5 (kW/m 2 PULL 2 PULL	int:YRe	straint : kW/sm) :	Angular i	destrair /radian	it)		
Joint Rumber	Supports = 2 % Restra 5 (kW/m 2 PULL 5 PULL	int:YRe	straint : kW/sm) :	Angular i	destrair /radian	it)		
Joint Humber 1 13	Supports = : X Restra : (kH/m : PULL : PULL	int:YRe	straint : kW/sm) :	Angular i	destrair /radian	it)		
Joint Humber 1 13 APPLIED JOINT 2	Supports = : X Restra : (kH/m : FULL : FULL : RULL	2 int:YRm n):(::F: ::F: ::F: ::RM	straint : kW/am) :	Angular i	destrair /radian	it)		
Joint Humber 1 3 APPLIED JOINT 2	Supports = : X Restra : (kW/m : FULL : FULL : FULL CASE	2 int:YRm):(i	straint : kH/mm) :	Angular i (101.m. 22m)	destrair /radian	it)		
Joint Humber 1 13 APPLIED JOINT 2	Supports = : X Restra : (kW/m : FULL : FULL : FULL CASE	2 int:YRm):(i	straint : kH/mm) :	Angular i (101.m.	destrair /radian	it)		
SUPPORT: No. of : Joint Rumber 1 13 APPLIED JOINT 2 L O A B	Supports = : X Restra : (kW/m : FULL : FULL : FULL CADS AND	2 int:YRm):(::Fr ::Fr ::Fr ::Fr ::Fr ::Fr ::Fr ::F	straint : kH/sm) : ULL : ULL :	Angular i	destrair /radian	it)		
Joint Rumber 1 13 APPLIED JOINT 2 L O A B	Supports = : X Restra : (kW/m : FULL : FULL : FULL CADS AND	2 int:YRm):(::Fr ::Fr ::Fr ::Fr ::Fr ::Fr ::Fr ::F	straint : kH/sm) : ULL : ULL :	Angular i	destrair /radian	it)		
Joint Humber 1 13 APPLIED FOR BROWN 2 L O A BRO : Ha	Supports = 2 X Restra 3 (kW/m 1 FULL 1 FULL 1 FULL 1 FULL COADS AND C A S E Dead Lo LIVE LO	2 int:YRm m):(i ::F: ::P: ::COAD:L :Type: :IOAD:L :Type: :IOAD:PV: AD:PV:	streint : kH/mm) : ULL :	Angular i { kN.m. : SERVI : SERVI : SERVI	hestrain /radian)) 		
Joint Number 1 13 APPLIED JOINT 2 L O A B No : Ha	Supports = 2 X Restra 3 (kW/m 1 FULL 1 FULL 1 FULL 1 FULL COADS AND C A S E Dead Lo LIVE LO	2 int:YRm m):(i ::F: ::P: ::COAD:L :Type: :IOAD:L :Type: :IOAD:PV: AD:PV:	streint : kH/mm) : ULL :	Angular i { kN.m. : SERVI : SERVI : SERVI	hestrain /radian)) 		
Joint Humber 1 13 APPLIED JOINT 2 L O A B MO : Mac 1: 2: JOINT 4	Supports = 2 X Restra 3 (kW/m 1 FULL 1 FULL 1 FULL 1 FULL COADS AND C A S E Dead Lo LIVE LO	int: Y Re int: Y Re in): (Fraction LOAD: Let LType: Add: PV :	straint : KH/Amm) : ULL : ULL : ULL : Value 3.600 4.500	Angular i (ki)	hestrain /radian)) 		

JOINT 6

Deed Load: PV : LIVE LOAD: PV : 7.200 kW 9.000 kW

OAD	CAS	8 :	LOAD:	LOAD	/ HOM	ENT					
: Hame		:	TAbe:								
1:	Dead	Load:	PV:		7.200	ku					
	D140										
8 TMXO											
OAD o: Hame			Type:	Va	lue						
1:	Dead LIVE	LOAD:	PV :		7.200 9.000	JeH JeH					
OINT 10											
OAD o: Name		_	Type:	Va	lue						
1:	Dead	Load	PV :		7.200	IcH					
1:	LIVE	LOAD	: PV :		9.000	Icili					
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,										• JOB :	TRUSS
) 								DA!		DATE:	TRUSS
ANALYS	E (C)O	opyric	ght Co	eputer	and	M P U	T Serv	DA T	. A	DATE:	TRUSS
ANALYS	E (C)C	opyri	ght Co	aputar	and	M P U	T Serv	DA T	. A	• JOB : • DATE: • SHEET:	TRUSS
ANALYSI PPLIED L	E (C)C	opyri	ght Co	aputar	and	M P U	T Serv	DA T	. A	DATE:	TRUSS
ANALYSI PPLIED L	E (C)C	opyri	ght Co	aputar	and	M P U	T Serv	DA T	. A	DATE:	TRUSS
ANALYSI APPLIED LA	E (C)C	opyrid ND NOI	ght Co	eputer Contir	and wed	I P U	Serv	DA T	. A	DATE:	TRUSS
ANALYSI APPLIED LA DOINT 12 O A D io : Name 1:	C A S	opyric B HO HOI	ght Co	Eputer Contin	and wed	Design	Serv	D A 1	r A	DATE: SHEET:	TRUSS
ANALYSI APPLIED LA COINT 12 CO A D CO : Name 1:	E (C)COADS A	opyric B HO HOI	ght Co	Eputer Contin	and wed	Design	Serv	D A 1	r A	DATE: SHEET:	TRUSS
AMALYSI APPLIED LA OINT 12 , O A D lo : Name 1: 2: OINT 14	C A S Duad LIVE	DOPYTIC	ght Co	EQAD VA	and med / NON	Design	Serv	D A 1	r A	DATE: SHEET:	TRUSS
ANALYS	C A S Dead LIVE	DOPYTICAL MID MONEY	ght Co	LOAD VA	/ HON-	Design Design ENT	Serv	D A 1	r A	DATE: SHEET:	TRUSS

: TABULATED VALUES OF PARTIAL SAFETY FACTORS : Combination Number

LOAD CASE No: Name

: 1

	********					***********
•					* JOB	: TRUSS
*						
					* DAT	Et
					4	
•		•	ANALY	SISRES	U L T S *SHEE	r: 19
·						
 ANALYSE 	(C)Copyrio	ght Comput	er and Des	ign Services L	imited 1985	
********				**********	************	
RESULTS FOR	COMBINAT	ION 1				
Joint Displ	acements a	and Reacti	ons			
Joint No.	dx(sm)	dy(mm)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	-0.0011	35.100	48.600	0.000
2	1.35	-0.50	-0.0005			
3	0.36	-3.40	-0.0008			
4	1.05	-3.82	-0.0005			
5	-0.31	-5.89	-0.0008			
6	0.55	-6.14	-0.0003			
7 8 9	0.00	-6.93	-0.0003			
8	0.00	-7.10	0.0000			
9	0.31	-5.89	0.0003			
10	-0.55	-6.14	0.0003			
11	0.36	-3.40	0.0008			
12	-1.05	-3.82	0.0005			
13	0.00	0.00	0.0011	-35.100	48.600	0.000

Member Loads	Px (kH) 0.000	Py (kN) 0.000	No (kH.m) 0.000	
Joint Loads	0.000	-97.200	-874.800	
Reactions	0.000	-97.200	~874.800	
Summation	0.000	97.200	874.800	
Summation	0.000	0.000	0.000	
Haxima for Hemb	er 1			
Load Shear (kW Comb. (Abs. Max 1 0.0	.)(Compression		Max.+ve Pos.	g Noment (kn.m)> (m) Maxve Pos. (m) .000 0.000 0.000

Maxim	for	Hember	2					
			Maximum Ax					
Comb.	(Abs.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	64.800	0.000	0.000	0.00	0.000	0.000

Maxima	a for	Hember	3					

Load Shear (kN) Maximum Axial (kH) <----- Sending Moment (kR.m) <----- Comb. (Abm. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 0.000 72.900 0.000 0.000 0.000 0.000 0.000

•		- JOB : TRUSS
*	*	- 505 1 18030
•	•	* DATE:
•		* DATE:
	* AWALYSIS RESULT	
	- WM WPISIS MESOFI	S "SHEET! 20
* AMALISE (C)Copyright Compt	iter and Design Services Limite	d 1985

Haxima for Hember 4		
Load Shear (kH) Maximum /	wial (kH) < Bending No	ment (kN.m)
Comb. (Abs. Max.) (Compression	(Tension) Nax.+ve Pos. (m)	May -ve Bos (a)
1 0.000 77.900	0.000 0.000 0.000	nexve ros. (a)
1 0.000 72.700	0.000 0.000 0.000	0.000
Maxina for Number 5		
Maximu IOL Mampel 2		
Load Shear (kH) Naximum /	wial (kH) < Bending Mo	ment (kN.m)>
Comb. (Abs. Max.)(Compression) (Tension) Max. +ve Pos. (m)	Maxve Dos (m)
	0.000 0.000 0.000	

Haxima for Hember 6

a-d	Chase	/ LNs	24					_						(kN·m)		
omb.	(Abs.	Max.	(Com	Dress	ion i	(Ter	iku) maion	Nav	. +ve	De:	you w	/=\	ment Ma	(KN-M)	Pos	
1		0.000	1	40.5	00	- 0	0.000		0.00	00	0.	.000		0.000	0	.00
		Hember														+
oad	Shear	(kN)	м	aximu	m Ax	ial ((JdN)	<		Ser	din	g Mo	ment	(kM.m)		
omb.	(Abs.	Max.)	(Com	press	ion)	(Ter	asion) Hax	.+ve	- 1	os.	(m)	Max	(ve	Pos.	(m
1		0.000		35.1	00 		3.000		0.0	00	3	.000		0.000	0	- 00
		Hember														
oad	Shear	(kN)	. 8	laximu	m Ax	ial ((kH)	<		Ber	ndin	g Ma	ment	(kN.m)		
omb.	(Abs.	Max.)	(Com	press	ion)	(Te	asion) Max	.+ve		Pos.	(=)	Ma:	kve	Pos.	(m
1		0.000	!	0.0	00		5.400		0.0	00	3	.000		0.300) (.00
axima	for	Member	9													
bao	Shear	(101)	И	aximu	m Ax	ial	(lett)	<		Bei	ndin	g Mo	ment	(kH.m		
omb.	(Abs.	Hax.)	(Com	press.	ion)	(Te	asion	Hea	. +ve	1	Pos.	(m)	Ha:	KVe	DOS.	- (=
1,		0.000	,	0.0	00	25	9.700		0.0	00	0	.000		0.000	0	.00
nxim	for	Hember	10													
bac	Shear	(RH)	М	Maximu	n Ax	ial	(kN)	<		Ber	ndin	g Mo	ment	(k)1.m)	
omb.	(Abu.	Hax.)	(Com	press.	ion)	(Ter	noien	Haz	. tve	- 1	Pos.	(m)	Ha:	KVe	Pos.	(=
1		0.000	}	0.0	00	25	9.700		0.0	00	0	.000		0.00	3 3	l.eo
omb.	(Abs.	Max.)	(Com	Dress	ion)	(Ter	nsion) Max	. +ve	- 1	Pos.	(m)	Ma:	(kN.m Kve 0.000	Pos.	. fe
exim	for	Member	12													
bac	Shear	(kW)	Н	aximu	Ax:	ial	(kB)	<		Bei	ndin	g Mo	ment	(kN.m		
amp.	(ADS.	Max.)	(Com	bress	ion)	(Te	asion) Max	. tve	1	Pos.	(m)	Ha:	KVe	Pos.	. (m
1		0.000	1	35.1	00	-	2.000		0.0	00	0	.000		0.000) :	.00
					* *.									JOB :	TRUSS	
														DATE:		
					•	AW	AL	7 5 1	S	RE	s u	LT	S *	SHRET:	21	l.
ANJ	LYSE	(C)Cop	yria	ht Co	moute	ng ar	nd Des	sian	Sarv	ice	a Kii	=ite	d 191	85		
		Hember					*****	*****	***				44sc	******		***
	for !															
Axima		_		nvie			1 Sept 1	_		n.	44.0			4 3-01		
axima oad omb.	Shear	(kN)	(Com	DIRECTO	ioni	4 Tab	meion.	Man	4000	•	200	-	Man	(kN.m		
axima oad omb.	Shear	(kN)	(Com	DIRECTO	ioni	4 Tab	meion.	Man	4000	•	200	-	Man	(kN.m Kve 0.000		

Maxima for Member 14 Maximum Axial (kM) <----- Bending Moment (kN.m) -----> Load Shear (kH) Comb. (Abs. Max.)(Compression) (Tension) Max.-ve Pos. (m) Max.-ve Pos. (m) 1 0.000 40.500 0.000 0.000 3.000 0.000 0.000 Maxima for Hember 15 Load Shear (kN) Heximum Axial (kN) <----- Bending Moment (kN.m) ------Comb. (Abs. Max.)(Compression) (Tension) Nax.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 24.300 0.000 0.000 3.000 0.000 0.000 Maxima for Member 16 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. | Hax.) (Compression) (Tension) Max.-ve Pos. (m) Max.-ve Pos. (m) 1 0.000 16.200 0.000 0.000 3.000 0.000 0.000 Maxima for Hember 17 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 24.300 0.000 0.000 0.000 0.000 0.000 Maxima for Hember 18 Load Shear (kil) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 40.500 0.000 0.000 0.000 0.000 3.000

	for M		.,															
Load Si Comb. (A	Abs. i		Comp	ressi	(ao.	(1	renei	on) 00	Max	0.0	00	Pos.	(m)	Ma	0.	e 000	Pos.	(m 00.
Maxima 1	for H	ember	20															
Load Si Comb. (3	Abs. i		Comp	ressi	on)	(1	57.2	on) 76	Max	0.0	00	os.	(m) .243	Ma	x v	в .	Pos.	(10
Maxima i	for M	emper	21															
Maxima i Load Si Comb. ()	hear Abs.	(kN)	He	ressi	on)	- (1	rensi	(no	Hax	.+ve	1	Pos.	(四)	Me	EV		Pos.	(0
Load Si	hear Abs.	(kN) Max.)	He	ressi	on)	- (1	rensi	(no	Hax	.+ve	1	Pos.	(四)	Me	EV		Pos.	(0
Load Si	hear Abs.	(kN) Max.)	He	ressi	on)	- (1	rensi	(no	Hax	.+ve	1	Pos.	(四)	Me	EV		Pos.	(0
Load Si Comb. (A	hear Abs.	(kN) Max.) 0.000	He Comp	0.00	on)	(1	34.3	on) 65	Hax	.+ve 0.0:	00	4	(m) .243	Me	0.0	000	Pos. 0	.00
Load Si	hear Abs.	(kN) Max.) 0.000	He Comp	0.00	on)	(1	7ens (on) 65	Hax	.+ve 0.0:	00	4	(m) .243	Ha	JOB	000	Pos. 0	.00

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Maxima	for	Nember	22
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omb. (Abs. Na	x.l(Compressio	Axial (kW) < n) (Tension) Hea 11.455	t. tve Pos. f	m) Ma:	xve	Pos. (m)
axima for New						
oad Shear (k	H) Maximum	Axial (kH) <	Bending	Moment	(kN·m)	
1 0.	0.000	n) (Tension) Max) 11.455	8.000 0.0	00	0.000	4.24
laxima for Mes						
oad Shear (k	N) Maximum	Axial (k#) <	Bending	Homent	(kif.m)	
Comb. (Abe. He	x.)(Compressio	on) (Tension) Na:	x. +ve Pos. (m) Ma	xve	Pos. (m
1 0.		34.365				
Maxima for Mes						
oad Shear ()	M) Haximum	Axial (k#) <	Bending	Moment	(kH.m)	
Comb. (Abs. Me	x.)(Compression	on) (Tension) Ha: 57.276	x.+ve Pos. (22) PLA	n nnn	4.74
		, 37.279				
	OBTHATION 1					
Position (m)	Shear Porce	Axial Comp. B	end. Homent	dx	dy	Slope
Position (m)	Shear Porce (kW)	Axial Comp. B (kW)	end. Homest (kH.m)	dx (mm)	dy (mm)	Slope (deg)
Position (m) from End 1 %t. 4 3.000	Shear Force (kW) 0.000	Axial Comp. B (kW) 40.500	end.Moment (kH.m) 0.000	dx (mm) 1.0	dy (2001) -3.8	Slope (deg) -0.063
Position (m) from End 1 ft. 4 3.000 0.75L 2.250	Shear Porce (kW) 0.000 0.000	Axial Comp. B (kW) 40.500 40.500	end. Homent (kH.m) 0.000 0.000	dx (mt) 1.0 1.1	dy (mm) -3.8 -3.0	\$10pe (deg) -0.063 -0.063
Position (m) from End 1 72. 4 3.000 0.75L 2.250 0.50L 1.500	Shear Force (kH) 0.000 0.000 0.000	Axial Comp. B (kil) 40.500 40.500 40.500	end.Moment (kW.m) 0.005 0.000 0.000	dx (mm) 1.0 1.1 1.2	dy (mm) -3.8 -3.0 -2.2	Slope (deg) -0.063 -0.063 -0.063
Position (m) from End 1 7t. 4 3.000 7.75L 2.250 7.50L 1.500 7.25L 0.750 7t. 2 0.000	Shear Force (ldf) 9.000 0.000 0.000 0.000 0.000	Axial Comp. B (km) 40.500 40.500 40.500 40.500 40.500	end.Moment (kW.m) 0.000 0.000 0.000 0.000	dx (mm) 1.0 1.1 1.2 1.3	dy (mm) -3.8 -3.0 -2.2 -1.3 -0.5	Slope (deg) -0.063 -0.063 -0.063 -0.063
		Axial Comp. B (km) 40.500 40.500 40.500 40.500 40.500				
Gaximum +ve Be Gaximum -ve Be	ending Moment	0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kH.m 0.000 kH.m	at 0.000m	from ;	oint 2 oint 2	
taximum +ve Be taximum -ve Be RESULTS FOR CO	ending Moment ending Moment PMBINATION 1	0.000 kW.m 0.000 kW.m	at 0.000m	from ;	oint 2 oint 2	
RESULTS FOR CO Fosition (m From End Tr. 6 3.00 0.75L 2.25 0.50L 1.50 0.25L 0.75 0.10L 4 0.00	mding Moment anding Moment Shear Force (kil) 0.000 0.000 0.000	0.000 kH.m 0.000 kH.m	mt 0.000m at 0.000m lend.Moment (kW.m) 0.000 0.000 0.000 0.000 0.000	dx (mm) 0.6 0.7 0.8 0.9	dy (mm) -6.1 -5.6 -5.0 -4.4	Slope (deg) -0.044 -0.044 -0.044

* '708 : TRUSS

· DATE: * ANALYSIS RESULTS *SHEET: 23 ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 3 al Comp. Bend.Moment dx dy Slope (kik) (kik.a) (kik.a) (mm) (mm) (deg) 72.900 0.000 0.0 -7.1 -0.018 72.900 0.000 0.1 -6.9 -0.018 72.900 0.000 0.3 -6.6 -0.018 72.900 0.000 0.6 -6.6 -0.018 72.900 0.000 0.6 -6.6 -0.018 72.900 0.000 0.6 -6.1 -0.018 Fosition (m) Shear Force Axial Comp. Bend.Homent from End 1 (kH) (kH) (kH.m) (kH.m) (kH.m) 0.000 72.900 0.000 0.75L 2.250 0.000 1.500 D.SOL 0.000 0.30L 1.300 0.000 Jt. 6 0.000 Maximum +ve Bending Homent 0.000 kM.m at 0.000m from joint 6 Maximum -ve Bending Homent 0.000 kM.m at 0.000m from joint 6 0.750 0.000 72.900 72.900 0.000 -0.1 -6.9 0.018 0.25L 0.000 0.000 Maximum +ve Bending Moment 0.000 km.m at 0.000m from joint 8 Maximum -ve Bending Moment 0.000 km.m at 0.000m from joint 8 RESULTS FOR COMBINATION 1 MEMBER 5
 Fosition (m)
 Shear Force from End 1
 Axial Comp. Bend-Homent
 dx
 dy
 Slope (mm)

 from End 1
 (kW)
 (kW)
 (kW,m)
 (mm)
 (mm)
 (deg)

 1.12
 3.00
 0.000
 64.800
 0.000
 -1.0
 -3.8
 0.04

 7.75L
 2.250
 0.000
 64.800
 0.000
 -0.9
 -4.4
 0.044

 50L
 1.50
 0.000
 64.800
 0.000
 -0.7
 -5.0
 0.044

 2.25L
 0.750
 0.000
 64.800
 0.000
 -0.6
 -6.1
 0.044

 L.10
 0.000
 64.800
 0.000
 -0.6
 -6.1
 0.044
 JE. 12 0.75L 0.50L 1.500 0.25L 0.750 Jt. 10 0.000 Maximum +ve Bending Moment Maximum -ve Bending Moment 0.000 kH.m at 0.000m from joint 10 0.000 kH.m at 0.000m from joint 10 RESULTS FOR COMBINATION 1 MEMBER 6 | Position (m) | Shear Force | Axial Comp. | Bend | Homent | dx | dy | Slope | from | End | (kH) | (kH) | (kN.m) | (ma) | (deg) | (kN.m) | (kN.m) | (ma) | (deg) | (kn.m) | (k Jt. 14 3.000 0.75L 0.50L 0.25L Jt. 12 0.000 Haximum -ve Bending Homent 0.000 kM.m at 0.000m from joint 12 Maximum -ve Bending Homent 0.000 kM.m at 0.000m from joint 12

•								* JOB : 7	RUSS
								* DATE:	
,								*	
,			* A F	ALY	SIS	RESUL	TS		
						rvices Limi			
							****		********
ESULTS	FOR COM	BINATION	1 MEMBER						
	ion (m)					. Homent	dx	dy	Slope
	End 1		kH)	(kii)		(k#l.m)	(==)	(mm) -3.4 -2.6	(deg)
FE. 3	3.000	9.1	000	35.100		0.000	-0.4	-3.4	-0.063
	2.250	0.0		35.100		0.000	-0.3	-2.0	-0.06
.50L	1.500			35.100		0.000	-0.2 -0.1	-1.7	-0.003
.25L	0.750	0.1	000	35.100		0.000	-0-1	-0.3	-0.065
lt. 1	0.000	0.1	000	35.100		0.000	0.0	0.0	-0.069
lazimum	tve Ben	ding Mome	nt. ().000 ki	d.m at	3.000m 0.000m	from	joint 1	
laximum	-ve Ben	ding Momen	nt C).000 ki	H.m at	0.000m	from	joint 1	
		BINATION							
		Shear Fo					dx	dy	
	m End 1		kH)	(kil)		(kH.m)	(mm)		
rt. S	3.000	0.	000	-5.400		0.000	-0.3		
1.75L	2.250	0.	000	-5.400		0.000	-0.3	-5.3	-0.04
.50L	1.500	0.0	000	-5.400		0.000	-0.3 -0.3	-4.6	-0.04
25L	0.750			-5.400		0.000	-0.3	-4.0	-0.04
Jt. 3	0.000	0.	000	-5.400		0.000	-0.4	-3.4	-0.04
Maximum	+ve Ben	ding Home:	nt (0.000 k	N.m at	3.000m 0.000m	from	joint 3	
Maximum	-ve Ber	ding Mome	nt ().000 ki	M.m at	0.000m	from	joint 3	
RESULTS	FOR CO	HOITAKIE	1 NEMBER	ž 9					
	ion (m)		rce Axial	L Comp.	Bend	. Homent	dx	dy	
	E Bnd 1		kW)	(kH)		(kH-m)	(FF)	(max) -6.9	
Jt. 7				-29.700		0.000	0.0	-6.9	
1.75L	2.250			-29.700		0.000	-0.1	-6.7	
0.50L	1.500			-29.700		0.000	-0.2		
0.25L	0.750			-29.700		0.000	-0.2		
It. 5	0.000	0.	000 -	-29.700		0.000	-0.3	-5.9	-0.02
Maximum	tve Ber	ding Mome	nt !	0.000 k	N.m at	0.000m 0.000m	from	joint 5	
Maximum	-ve Ber	ding Mome	nt ().000 k		0.000m			
		BINATION							
	ion (m)		rce Axia			.Moment	dx		
from	m End 1	(kW)	(kN)		(kH.m)	(mm)	(20m)	(deg
	3.000	0.		-29.700		0.000	0.3	-5.9	0.02
Jt. 9									
Jt. 9	2.250	g.	000 -	-29.700		0.000	0.2	-6.1	0.02
Jt. 9	1.500	g.	000 -			0.000	0.2	-6.4	
Jt. 9	1.500	0.	000	-29.700				-6.4	0.02

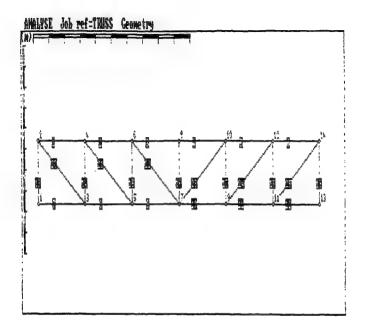
Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 7 Maximum -ve Bending Homent 0.000 kN.m at 3.000m from joint 7

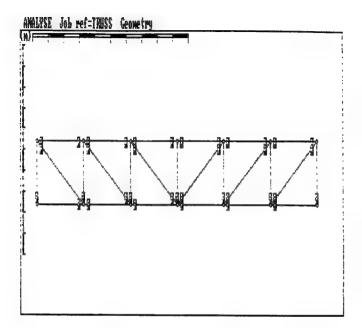
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		•			* DATE:	
		* A H A L V	SIS RESU	. . .	*CHEPT.	36
***********	**********		ga Services Lim	ited	1985 	
ESULTS FOR COM	BINATION 1	NEMBER 11				
Position (m)	Shear Porce	Axial Comp.	Bend-Moment (kN.m) 0.000 0.000	dx	dv	Slope
from End 1	(3cls)	(Idit)	(kN.m)	(==)	(200)	(deq)
Tt. 11 3.000	0.000	-5.400	0.000	0.4	-3.4	
.75L 2.250	0.000	-5.400	0.000	9.3	-4.0	
				0.3	-4.6	
3.50L 1.500 3.25L 0.750				0.3		
t. 9 0.000	0.000		0.000			
				0.3		0.047
laximum +ve Ben	ding Moment	0.000 km	m at 0.000m m at 0.000m	from	joint 9	
kwimum —ve Ben	ding Moment	0.000 km	m at 0.000m	from	joint 9	
ESULTS POR COM						
from End 1		Axial Comp.	Bend-Moment	dx		Slope
t. 13 3.000			(kli-m)	(1000)	(Jillin)	(deg)
757 3.000	0.000	35.100	0.000	0.0	0.0	0.065
0.75L 2.250	0.000		0.000	0.1	-0.9	
				0.2		0.069
0.25L 0.750 Ft. 11 0.000				0.3		0.065
E. 11 9.000	0.000	35.100	0.000	0.4	-3.4	0.069
laximum +ve Ben	ding Homent	0.000 km.	mat 0.000m	from	ioint 11	
laximum -ve Ben	ding Moment	0.000 kH.	m at 3.000m	from	joint 11	
ESULTS FOR COS	BIMATION 1	HEMBER 13			~	
Position (m)	Shear Porce	Axial Comp.	Rand Manage	dx		
from End 1		(kir)	(km.m)			Slope
t. 2 3.000	0.000			(ma)		(deg)
.75L 2.250	0.000			1.4		89.974
-50L 1.500	0.000	48,600		1.0		
.25L 0.750				0.7		
	0.000	48.600	0.000	0.3		
	_			0.0		89.974
aximum +ve Bend	ding Moment	0.000 kM.	m at 3.000m m at 0.000m	from	ioint 1	
aximum -ve Bend	ding Homent	0.000 kM.	m at 0.000m	from	joint 1	
ESULTS FOR COM					~~~~~~	
Position (m)	Shear Porce	Arial Comp	Bond Monant	dx		
			DELICE - PROBEST C	ЗX	dy	Slope

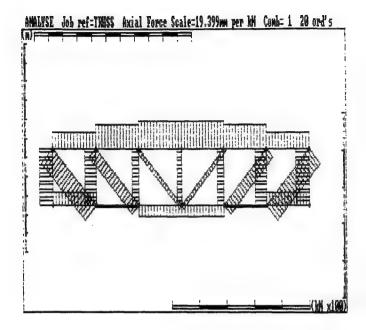
	End 1		(kH)		()(10)		(kH.m)	(mm)	(man)	(de#)
0.75L	3.000		0.000		0.500		0.000	1.0	-3.8	89.973
	1.500		0.000		0.500		0.000	0.7	-3.7	89.973
0.25L	0.750		0.000		0.500		0.000	0.3	-3.6	89.973
					0.500		0.000 0.000 0.000 0.000	0.0	-3.2	89.973
Jt. 3	0.000		0.000		0.500		0.000	-0.4	-3.4	89.973
Mavimum	Ave Hen	dina Ma	- Cream		000 22		2 000-	from	iniat :	
Maximum	-ve Ben	ding Mo	ment	0.	.000 kN	.m at	3.000m 0.000m	from	ioint	
									,	
							. وخدنده سود			
*									* JOB :	
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							rvices Limi			
						-				******
RESULTS	FOR COM	BINATIC	M 1	REMBER	15					
Positi	on (m)	Shear	Force	Avial	Comp.	Bend	. Homent	dw	d	y Slope
	End 1		(kN)		(kH)		(kH.m)	(mm)	/ 1000	(dea)
			0.000		4.300		0.000	17.	1,000	1 00 004
Jt. 6	2 250				24 300		0.000	0.6	-6.	09.704
0.75L	2.250		0.000	2	24.300		0.000	0.5	-6.	1 89.984
0.75L 0.50L	2.250 1.500		0.000	3	24.300 24.300		0.000	0.3	-6. -6.	(deg) 1 89.984 1 89.984 0 89.984
0.75L 0.50L 0.25L	2.250 1.500 0.750		0.000	3	24.300 24.300 24.300		0.000	0.6 0.1 -0.1	-6. -6.	9 89.984
Jt. 6 0.75L 0.50L 0.25L Jt. 5	2.250 1.500 0.750 0.000		0.000	3	24.300 24.300		0.000 0.000 0.000 0.000	0.8 0.1 -0.1 -0.3	-6.0 -6.0 -5.1	9 89.984
0.75L 0.50L 0.25L Jt. 5	2.250 1.500 0.750 0.000		0.000 0.000 0.000 0.000		24.300 24.300 24.300 24.300		0.000	-0.1	-5.	9 89.984
0.75L 0.50L 0.25L Jt. 5	2.250 1.500 0.750 0.000		0.000 0.000 0.000 0.000		24.300 24.300 24.300 24.300		0.000	-0.1	-5.	9 89.984
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum	2.250 1.500 0.750 0.000 +ve Ben -ve Ben	ding Mo	0.000 0.000 0.000 0.000 ment	0.	24.300 24.300 24.300 24.300 24.300 .000 ks	l.m at	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from	joint	9 89.984 9 89.984
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum	2.250 1.500 0.750 0.000 +ve Ben	iding Mo	0.000 0.000 0.000 0.000 ment	0.	24.300 24.300 24.300 24.300 .000 ks	l.m at	0.000	-0.1 -0.3 from	joint	9 89.984 9 89.984
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS	2.250 1.500 0.750 0.000 +ve Ben -ve Ben	ding Mo	0.000 0.000 0.000 0.000 ment	0. 0. NEMBER	24.300 24.300 24.300 24.300 .000 kg	l.m at l.m at	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from	joint i	9 89.984 9 89.984 5
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Mo	0.000 0.000 0.000 0.000 ment ment	0. 0. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg	l.m at	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from	joint :	9 89.984 9 89.964 5
0.75L 0.50L 0.25L Jt. 5 Maximum Meximum Positi from	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Mo ding Mo BIRATIO	0.000 0.000 0.000 0.000 ment ment ment Force (kH)	0. 0. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg	I.m at I.m at Bend	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from	joint :	9 89.984 9 89.984 5
0.75L 0.50L 0.25L Jt. 5 Maximum Meximum RESULTS Positi from Jt. 8	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Mo ding Mo BINATIO Shear	0.000 0.000 0.000 0.000 ment ment Torce (kW) 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg .000 kg .000 kg .000 kg	l.m at l.m at Bend	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from	joint :	9 89.984 9 89.984 5
0.75L 0.50L 0.25L Jt. 5 Maximum Meximum RESULTS Positi from Jt. 8	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Mo ding Mo BINATIO Shear	0.000 0.000 0.000 0.000 ment ment Torce (kW) 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 ks .000 ks .000 ks .000 ks .000 ks .000 ks	I.m at I.m at Bend	0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from	joint :	9 89.984 9 89.984 5
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.50L	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben -ve Ben 2.250 1.500	ding Mo ding Mo BIRATIO Shear	0.000 0.000 0.000 0.000 ment ment (kN) 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii	I.m at I.m at Bend	0.000 3.000m 6.000m -Homent (kil.m) 0.000 0.000	-0.1 -0.3 from from dx (mm) 0.0 0.0	-5. -5. joint : joint : d (am -7. -7.	9 89.984 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
0.75L 0.50L 0.25L Jt. 5 Maximum Maxim	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM on (m) 1.500 1.500 0.750	ding Mo ding Mo BIRATIO Shear	0.000 0.000 0.000 0.000 0.000 0.000 0.000 1 0.000 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 ki .000 ki	I.m at I.m at Bend	0.000 3.000m 6.000m -Moment (kkl.m) 0.000 0.000	-0.1 -0.3 from from dx (mm) 0.0 0.0	-5. -5. joint : joint : d (am -7. -7.	9 89.984 9 89.984 5 5 7 8 Slope 1 90.000 1 90.000 0 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.50L	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben -ve Ben 2.250 1.500	ding Mo ding Mo BIRATIO Shear	0.000 0.000 0.000 0.000 ment ment (kN) 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii .000 kii	I.m at I.m at Bend	0.000 3.000m 6.000m -Homent (kil.m) 0.000 0.000	-0.1 -0.3 from from	-5. -5. joint : joint : d (am -7. -7.	9 89.984 9 89.984 5 5 7 8 Slope 1 90.000 1 90.000 0 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Haximum Haximum Haximum Haximum Haximum Haximum Haximum Jt. 8 0.75L 0.50L 0.25L Jt. 7	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben 1.500 0.00 (m) 1.500 0.750 0.000	dding Modding Modding Modern	0.000 0.000 0.000 0.000 ment ment Torce (kH) 0.000 0.000 0.000 0.000	O. MEMBER Axial	24.300 24.300 24.300 24.300 000 kg 000 kg 16 Comp. (kW) 16.200 16.200 16.200 16.200	l.m at l.m at Bend	0.000 0.000 3.000m 0.000m .Homent (kH.m) 0.000 0.000 0.000 0.000	-0.1 -0.3 from from dx (sm) 0.0 0.0 0.0	-5. -5. joint : joint : di (amm -7. -7. -7. -7. -7.	9 89.984 9 89.984 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Maximum Maximum Maximum Maximum Maximum Jt. 8 0.75L 0.50L 0.25L Jt. 7	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben 1.500 0.00 (m) 1.500 0.750 0.000	dding Modding Modding Modern	0.000 0.000 0.000 0.000 ment ment Torce (kH) 0.000 0.000 0.000 0.000	O. MEMBER Axial	24.300 24.300 24.300 24.300 000 kg 000 kg 16 Comp. (kW) 16.200 16.200 16.200 16.200	l.m at l.m at Bend	0.000 0.000 3.000m 0.000m .Homent (kH.m) 0.000 0.000 0.000 0.000	-0.1 -0.3 from from dx (sm) 0.0 0.0 0.0	-5. -5. joint : joint : di (amm -7. -7. -7. -7. -7.	9 89.984 9 89.984 55 57 9 8lope 1 90.000 1 90.000 0 90.000 90.000 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Positi from Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximum Maximum	2.250 1.500 0.750 0.000 •ve Ben -ve Ben FOR COM on (m) 1.500 1.500 0.750 0.000 •ve Ben -ve Ben -ve Ben	ding Moding Modi	0.000 0.000 0.000 0.000 0.000 0.000 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000	O.O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg	I.m at I.m at Bend	0.000 0.000 3.000m 6.000m (kN.m) 0.000 0.000 0.000 0.000 0.000 3.000m 0.000m	-0.1 -0.3 from from dx (sm) 0.0 0.0 0.0 from from	-5. -5. joint : joint : (am -7. -7. -7. -7. -6. joint :	9 89.984 9 89.984 55 7 Slope (deg) 1 90.000 1 90.000 90.000 90.000
0.75L 0.50L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.50L Jt. 7 Maximum Maximum Maximum	2.250 1.500 0.750 0.000 •ve Ben -ve Ben -ve Ben 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben	ding Moding Moding Mc	0.000 0.000 0.000 0.000 0.000 0.000 1 Porce (kW) 0.000 0.000 0.000 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 1.000 kg 16 Comp. (kw) 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200	I.m at I.m at Bend	0.000 0.000 3.000m 0.000m .Homent (kH.m) 0.000 0.000 0.000 0.000	-0.1 -0.3 from from dx (sm) 0.0 0.0 0.0 from from	-5. -5. joint : joint : (am -7. -7. -7. -7. -6. joint :	9 89.984 9 89.984 55 57 7 Slope (deg) 1 90.000 1 90.000 90.000 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Positi from Jt. 8 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum	2.250 1.500 0.750 0.000 •ve Ben -ve Ben -ve Ben 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben	ding Moding Moding Mc	0.000 0.000 0.000 0.000 0.000 0.000 1 Porce (kW) 0.000 0.000 0.000 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 1.000 kg 16 Comp. (kw) 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200 16-200	I.m at I.m at Bend	0.000 0.000 3.000m 6.000m .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000	-0.1 -0.3 from from 0.0 0.0 0.0 0.0 0.0 from from	dd (am776. joint joint	9 89.984 5 89.984 5 5 7 81ope 1 40.000 1 90.000 0 90.000 9 90.000
0.75L 0.50L 0.25L Jt. 3 Maximum Maximum Maximum RESULTS 0.55L 0.55L 0.25L Jt. 7 Maximum Maximum Maximum Maximum Maximum Maximum Maximum RESULTS	2.250 1.500 0.750 0.000 •ve Ben -ve Ben -ve Ben 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben	ding Moding Modi	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	O.O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg	Bend.	0.000 0.000 3.000m 6.000m .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000	-0.1 -0.3 from from 0.0 0.0 0.0 0.0 0.0 from from	dd (am776. joint joint	9 89.984 5 89.984 5 5 7 Slope 1 90.000 1 90.000 0 90.000 9 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Maximum Maximum 7.50L 0.75L 0.25L Jt. 7 Maximum Maximum RESULTS Positi	2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM 0.0 (m) 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben	ding Moding Modi	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	O.O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg	Bend Bend I.m at	0.000 0.000 3.000m 6.000m .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000	-0.1 -0.3 from from 0.0 0.0 0.0 0.0 0.0 from from	dd (am776. joint joint	9 89.984 5 89.984 5 5 7 Slope 1 90.000 1 90.000 0 90.000 9 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Maximum Maximum Maximum Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximu	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben 1.3.000 2.250 0.750 0.000 +ve Ben -ve Ben	dding Modding	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000	O. O. MEMBER Axial O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg .000 kg	Bend	0.000 0.000 3.000m 6.000m .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000	-0.1 -0.3 from from 0.0 0.0 0.0 0.0 0.0 from from	dd (am776. joint joint	9 89.984 5 89.984 5 5 7 Slope 1 90.000 1 90.000 0 90.000 9 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum Maximum Maximum Maximum Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximu	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben 1.3.000 2.250 0.750 0.000 +ve Ben -ve Ben	dding Modding	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	O. MEMBER Axial O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 kg .000 kg	Bend.	0.000 3.000m 6.000m 6.000m 6.000m 6.000m 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000	-0.1 -0.3 from from dx (mm) 0.0 0.0 0.0 from from dx (mm) -0.0	di (smm -7776. joint joint joint joint di (smm -7776666666666	9 89.984 5 89.984 5 5 7 Slope 1 90.000 1 90.000 0 90.000 9 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximum RESULTS Positi from Jt. 10	2.250 1.500 0.750 0.000 +ve Ben -ve Ben -ve Ben 1.3.000 2.250 0.750 0.000 +ve Ben -ve Ben	dding Modding	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	O. O. NEMBER Axial O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 ki 16 .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki	Bend.	0.000 3.000m 6.000m 6.000m 6.000m 6.000m 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000	-0.1 -0.3 from from dx (mm) 0.0 0.0 0.0 from from dx (mm) -0.0	di (smm -7776. joint joint joint joint di (smm -7776666666666	9 89.984 5 89.984 5 5 7 Slope 1 90.000 1 90.000 0 90.000 9 90.000
0.75L 0.25L 0.25L Jt. 5 Maximum Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximum Maximum Maximum Maximum Jt. 10 0.75L 0.50L 0.50L 0.50L 0.50L 0.50L 0.50L 0.50L	2.250 1.500 0.750 0.000 +ve Ben -ve Ben 1.500 0.750 0.000 +ve Ben 2.250 0.000 +ve Ben -ve Ben 1.500 0.2250 0.000 1.500 0.250	ading Modding Modern	0.000 0.000 0.000 0.000 0.000 0.000 1.000 0.000	O. MEMBER Axial O. MEMBER Axial	24.300 24.300 24.300 24.300 300 kg 16 Comp. (kW) 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 16.200 24.300 24.300 24.300	Bend.	0.000 3.000m 6.000m 6.000m 6.000m 6.000m 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000	-0.1 -0.3 from from dx (mm) 0.0 0.0 0.0 from from dx (mm) -0.0	di (smm -7776. joint joint joint joint di (smm -7776666666666	y Slope 1 90.000 1 90.000 1 90.000 0 90.000 7 7 7 7 7 Slope 1 (deg) 1 90.000 1 90.000 9 90.000 9 90.000 7 7 90.000
0.75L 0.50L 0.25L Jt. 5 Maximum Maximum Maximum RESULTS Positi from Jt. 8 0.75L 0.25L Jt. 7 Maximum Maximum RESULTS Positi from Jt. 10	2.250 1.500 0.750 0.000 +ve Ben -ve Ben 1.500 0.750 0.000 +ve Ben 2.250 0.000 +ve Ben -ve Ben 1.500 0.2250 0.000 1.500 0.250	ading Modding Modern	0.000 0.000 0.000 0.000 0.000 0.000 1 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	O. O. MEMBER Axial	24.300 24.300 24.300 24.300 .000 ki 16 .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki .000 ki	Bend	0.000 3.000m 6.000m 6.000m 6.000m 6.000m 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000	-0.1 -0.3 from from 0.0 0.0 0.0 0.0 0.0 from from	-5. -5. joint : joint : (ama -7. -7. -7. -7. -6. joint joint :	9 89.984 5 89.984 5 5 7 81ope 1 40.000 1 90.000 0 90.000 9 90.000 7 7

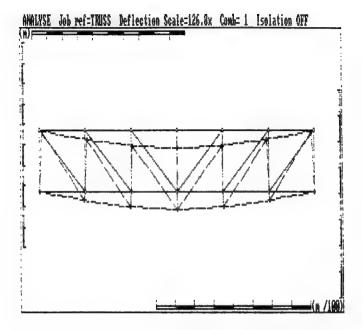
WEI HOM	-ve	Sen	ding	Mom	ent		0.	000	kW.	,m 4	at	0.000m	from	joint	9	
ESULTS						MEMB	BR	18	-		-	-				
Positi	on i	(m)	Shea	r P	orce	Axi	a1	Com	p.	Bei	nd.	Moment	dж		dy	Slop
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t. 12	3.1	000			-000		- 4	10.5	00			0.000	-1.0	-3	1.8	90.02
.75L	2.3	250			-000		- 4	10.5	00			0.000	-0.7	-:	1.7	90.02
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.25L	0.	750			.000			10.5				0.000	0.0	-:	1.5	
t. 11	0.0	000		0	.000		4	10.5	00			0.000	0.4	-:	1.4	90.02
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RESULTS	FOR	CON	BIMA	TION	1	MEMB	ER	19	-	***		Manage				Slo
Posit: from Jt. 14	FOR	CON	BIMA	TION	1	MEMB	ER	19	-	***		Moseut		(:	dy 	Slog (dec
Posit: from Jt. 14	FOR	(m) d 1 000 250	She	FION RF E	orce (kH)	MEMB Axi	ER	19 Com (k 48.6	P. N) 00	De.	nd.	.Moment (km.m) 0.000 0.000	dx (mm) -1.4 -1.0	(1	dy 	Slog (dec 90.03
Posit: from	FOR	(m) d 1 000 250 500	She	rion	orce (kH)	HEHB Axi	ER	19 Com (k 48.6 48.6	P. W) 00 00	Be	nd.	.Moment (km.m) 0.000 0.000	dx (mm) -1.4 -1.0	(1	dy 0.5	Slog (dec 90.03 90.03
Positi from t. 14 0.75L 0.50L	FOR lon a En 3. 2.	(m) d 1 000 250	She	PION RF F	orce (kH)	HEHB Axi	ER	19 Com (k 48.6 48.6	P. W) 00 00	ðe.	nd.	Moment (kH.m) 0.000 0.000 0.000		(7	dy 0.5 0.4 0.3	Slog (dec 90.03 90.03 90.03
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Posit; fro; ft. 14 0.75L 0.50L 0.25L 0.25L 0.25L 0.25L	FOR 50. 3. 2. 1. 0. 0. 0. +ve-	(m) d 1 000 250 500 750 000	BIMA' She	PION RF F	orce (kW) 0.000 0.000 0.000 0.000 0.000	MEHB	ER al	19 Com (k 48.6 48.6 48.6 48.6 48.6	P. M) 00 00 00 00 00 km	3e	nd.	Moment (kH.m) 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0	joint joint	dy 0.5 0.4 0.3 0.1	810; (de: 90.0; 90.0; 90.0; 90.0;
Posit: from the first	FOR ion 3. 2. 1. 0. 9. +ve -ve	(m) d 1 000 250 500 750 000 Ben COP	BIMA' She	FIOR Mos Mos Mos	orce (k#) 0.000 0.000 0.000 0.000 0.000	MENB Axi	ER al	19 Com (k 48.6 48.6 48.6 48.6 .000 .000	P. W) 00 00 00 00 km	Be . E . R	nd.	Moment (km.m) 0.000 0.00	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	joint joint	dy 0.5 0.4 0.3 0.1	Slog (dec 90.02 90.02 90.02 90.03
Posit: from 1.75L 0.50L 0.25L 1.25L	FOR ion 3. 2. 1. 0. 0. +ve -ve FOR	(m) d 1 000 250 500 750 000 Ben COP	BIMA' She	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	en o o o en	19 Com (k 48.6 48.6 48.6 48.6 20 Com (k	P. W) 00 00 00 00 km km	Be Be	nd.	Moment (km.m) 0.000 0.00	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	joint joint	dy 0.5 0.4 0.3 0.1 0.0	Slop (dec 90.02 90.02 90.03 90.03
Posit: from the second	FOR SO	(m) d 1 000 250 500 750 000 Ben Sen (m) d 1	BIMA' She	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	ER al 0 0	19 Com (k 48.6 48.6 48.6 48.6 .000 .000 Com (k	P. M) 00 00 00 00 00 km km	Be Be	nd.	Moment (km.m) 0.000 0.00	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	joint joint	dy 0.5 0.4 0.3 0.1 0.0 11 13	Slog (dec 90.02 90.03 90.03 90.03 (dec -45.00
Posit: fro Jt. 14 0.75L 0.50L 0.25L Jt. 13 Marinum Marinum Marinum Fosit. fro Jt. 3 0.75L	FOR S. 2. 1	(m) d 1 000 250 500 750 000 Ben 8mm (m) d 1 243	BIMA' She	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	ER al 0 0	19 Com (k 48.6 48.6 48.6 48.6 48.6 .000 .000 	P. H) 000 000 000 000 km km 76 76	Be .n	at at	.Moment (kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.3 0.0 from from (mm) -0.4	joint	dy) 0.5 0.4 0.3 0.1 13 dy dy) 3.4 2.7	slog (dec 90.02 90.03 90.03 90.03 90.03
Posit: fro yt. 14 0.75L 0.25L Jt. 13 Maximum Maximum FIRSULTS Fosit: jt. 3 0.75L 0.50L	FOR STATE OF THE PORT OF THE P	(m) d 1 000 250 500 750 000 Ben (m) d 1 243 121	BIMA' Sheading	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	ER al	19 Com (k48-648-648-648-657-22577-2577-2577-2577-2577-2577-2577	P-M) 000 000 000 000 km km	an a	at at	.Moment (kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.3 0.0 from from (mm) -0.4	joint	dy) 0.5 0.4 0.3 0.1 13 dy) 3.4 2.7 2.0	Slog (dec 90.02 90.02 90.02 90.03 90.03 Slog (dec -45.00
Posit: fro fro ft. 14 0.75L 0.25L Jt. 13 Maximum Maxim	FOR STATE OF THE PORT OF THE P	(m) d 1 000 250 500 750 000 Ben 8mm (m) d 1 243	BIMA' Sheading	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	ER al	19 Com (k 48.6 48.6 48.6 48.6 48.6 .000 .000 	P-M) 000 000 000 000 km km	an a	at at	.Moment (kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.3 0.0 from from (mm) -0.4	joint	dy) 0.5 0.4 0.3 0.1 13 dy) 3.4 2.7 2.0	slog (dec 90.02 90.03 90.03 90.03 90.03
Posit: frog Jt. 14 0.75L 0.50L 0.25L Jt. 13 Harimum Harimum Frogit: frog Jt. 3 0.75L 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L	FOR 1.00.00.00.00.00.00.00.00.00.00.00.00.00	(m) d 1 000 250 500 750 000 Ben (m) d 1 243 121	BIMA' She	PION PION PION	1 (kH) 0.000 0.000 0.000 0.000 ment	MENB ARI	en o	19 Com (k48-648-648-648-657-22577-2577-2577-2577-2577-2577-2577	P-M) 00 00 00 00 km km P-M) 76 76 76	Be .mm.	at at	Moment (km.m) 0.000 0.00	dx (mm) -1.4 -1.0 -0.3 0.0 from from (mm) -0.4	joint	dy 0.5 0.4 0.3 0.1 0.0 11 13 dy 3.4 2.7 2.0	Slog (de: 90.0; 90.0; 90.0; 90.0; 90.0; (de: -45.0; -45.0;
Posit. from 14 14 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	FOR 1.00.00.00.00.00.00.00.00.00.00.00.00.00	(m) dd 1 000 250 750 000 1 Bern 243 182 243 182 261 000	Sheding Sheding	Mos Hos (()	7 orce (kH) 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000 3.000	HEND ARI	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	19 Com k 48-66 48-66 48-66 48-66 -000 Com 57-22 57-22 57-2 -000 -000 -000 -000 -000 -000 -000 -	P. III) 000 000 000 000 km km 766 776 776 km lcli	Be Be	at at at at	.Moment (xx.m) 0.000 0.0	dx (mm) -1.0 -0.7 -0.3 0.0 from from 0.1 0.5 0.9 1.4 from from from from from from from from	joint joint	dy 0.5 0.4 11 12 dy 3.4 2.7 2.0 0.5 2 2	Slo 90.0: 90.0: 90.0: 90.0: 90.0: 90.0: 645.0 645.0 645.0
Posit: fro 7t. 14 0.75L 0.75L 0.25L 0.25L 0.25L fro faximum REGULTS Fosit. fro Jt. 3 0.75L 0.30L 0.25L Jt. 2 Maximum Maximum Maximum Maximum	FOR STATE OF THE PORT OF THE P	CON (m) dd 1	Sheding ding Sheding sheding	HOSE HOSE HOSE HOSE HOSE HOSE HOSE HOSE	7 Torce (kM)000 (kM)00	MEMB ARI	2R al	19 Com (kt 48-648-648-648-648-657-220 Com to 57-257-257-2-0000 Com to 57-257-2-0000 Com to 57-2-0000 Com	P. 1000000000000000000000000000000000000	Be Be	at at at at	Moment (kir.m) 0.000 0.0	dx (mm) -1.0 -0.7 -0.3 0.0 from from 0.1 0.5 0.9 1.4 from from from from from from from from	joint joint	dy 0.5 0.4 11 12 dy 3.4 2.7 2.0 0.5 2 2	Slog (dec 90.02 90.02 90.02 90.02 90.02 90.02 90.02 90.02 90.02
Posit: fro 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum Posit: fro Jt. 3 0.75L 0.50L 0.50L 0.50L	FOR	(m) d 1 000 500 750 000 8em COM (m) d 1 250 500 750 000 6 1 260 1 243 182 243 182 181 181 181 181 181 181 181 181 181	Sheding ding Sheding S	Mosses I	1 1 1 1 1 1 1 1 1 1	MENB AXI MENB AXI	ER al 0 0 0 ER	19 Com (k 48.6 48.6 48.6 48.6 48.6 5.000 Com (k 57.2 57.2 57.2 57.2 23.000 .000	P- 1000000000000000000000000000000000000	Be Be	nd.	.Moment (xx.m) 0.000 0.0	dx (mm) -1.0 -0.7 -0.3 0.0 from from 0.1 0.5 0.9 1.4 from from from from from from from from	joint joint	dy 0.5 0.4 11 12 dy 3.4 2.7 2.0 0.5 2 2	Slop (de: 90.0: 90.0: 90.0: 90.0: 90.0: (de: -45.0 -45.0 -45.0

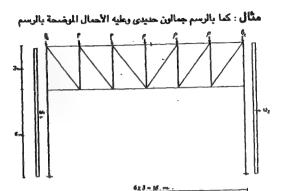
Jt. 5 0.75L	4.243	0.000	-34.365 -34.365	0.000	-0.3	-5.9	-45.033
0.75L	3-182	0.000	-34.365 -34.365 -34.365 -34.365	0.000	0.0	-5.4	-45.033
0.50L	2.121	0.000	-34.365	0.000	0.4	-4-9	~45.033
0.25L Jt. 4	1.061	0.000	-34.365	0.000	0.7	-6.3	-45.033
Jt. 4	0.000	0.000	-34.365	0.000 0.000 0.000 0.000 0.000	1.0	-3.8	~45.033
Mavimus	Ave Ben	ding Moment	0.000 km.w	at 4.243m	from	ioint 4	
Maximum	-ve Ben	ding Moment	0.000 km.m 0.000 km.m	at 0.000m	from	joint 4	
RESULTS	FOR CON	BINATION 1	MEMBER 22				
*					ales.		£1ana
Positi	LOn (E)	Shear Force	Axial Comp. 8	lend . Noment	dx.	dy	a toba
iros	e End I	(830)	(901)	(XX.m)	(max)	(46 013
3 751	3 193	0.000	-11.455	0.000	0.0	-6.7	-45 013
0.756	3-102	0.000	-11.455	0.000	0.1	-6.5	-45 013
0.362	1 061	0.000	11.455	0.000	0.3	-6.3	-45 013
70 6	0.001	0.000	Axial Comp. (kW) -11.455 -11.455 -11.455 -11.455 -11.455	0.000	0.6	-6.1	-45.013
JE. 8	0.000	0.000	-11.433	0.000		-0.1	-43.013
Maximum	tve Ben	ding Homent	0.000 kH.x	at 4.243s	from	joint 6	
Maximum	-ve Ben	ding Moment	0.000 kM.s 0.000 kM.s	at 0.000s	from	joint 6	
			-				
***********						• JOB : 1	
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			•			· DATE:	
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			* A H A L Y S	IS RESU	LTS	·SHEET:	28
*							
· AMAL:	YSE (C)C	opyright Comp	outer and Design	Services Lis	ited:	1985	
· ANAL:				Services Lis	ited:	1985	*********
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* AMAL:	POR CON	BINATION 1	HENBER 23		ited :	***********	
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* AMAL:	POR CON	BINATION 1	HENBER 23		ited :	***********	
Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7	FOR COM ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	Shear Force (km) 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455	Send-Noment (kil-m) 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.6 -8.4 -0.3 -0.1	dy (mm) -6-1 -6-3 -6-5 -6-7 -6-9	Slope (deg) 45.013 45.013 45.013 45.013
Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7	FOR COM ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	Shear Force (km) 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455	Send-Noment (kil-m) 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.6 -8.4 -0.3 -0.1	dy (mm) -6-1 -6-3 -6-5 -6-7 -6-9	Slope (deg) 45.013 45.013 45.013 45.013
Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7	FOR COM ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	Shear Force (km) 0.000 0.000 0.000 0.000 0.000 ding Homent	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Bend. Noment (kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.6 -8.4 -0.3 -0.1	dy (mm) -6-1 -6-3 -6-5 -6-7 -6-9	Slope (deg) 45.013 45.013 45.013 45.013
* AMAL MESULTS Posit. fro Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum	FOR COM ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber	BINATION 1 Shear Force (kM) 0.000 0.000 0.000 0.000 0.000 0.000 ding Homent	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.s	Send-Noment (kil-m) 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.6 -8.4 -0.3 -0.1	dy (mm) -6-1 -6-3 -6-5 -6-7 -6-9	Slope (deg) 45.013 45.013 45.013 45.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 85.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 65.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 85.013
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	\$1ope (deg) 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
* AMAL: RESULTS Posit. from Jt. 10 0.75L 0.50L 0.25L Jt. 7 Maximum Maximum RESULTS	FOR COP ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber FOR COP	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (kH) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH.	Send Noment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000m a 4.243m	dx (sm) -0.6 -0.4 -0.3 -0.1 0.0	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	\$1ope (deg) 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
* AMAL* **manuser* **RESULTS* **Posit. from Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS* **Posit. from Jt. 12 0.751. 0.501. 0.252. Jt. 9	FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000	### BINATION 1 Shear Force (kik) 0.000 0.	MEMBER 23 Axial Comp. (MM) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kM.s MEMBER 24 Axial Comp. (MM) -34.365 -34.365 -34.365	Noment (kH m)	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 m from (mm) -1.0 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
* AMAL* **manuser* **RESULTS* **Posit. from Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS* **Posit. from Jt. 12 0.751. 0.501. 0.252. Jt. 9	FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000	Shear Force (km) 5.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	MEMBER 23 Axial Comp. (MM) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kM.s MEMBER 24 Axial Comp. (MM) -34.365 -34.365 -34.365	Noment (kH m)	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 m from (mm) -1.0 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
* AMAL* **manus** **RESULTS* **Posit. fro **Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum **RESULTS* **Posit. 12 0.501. 0.252. Jt. 12 0.501. 0.5	FOR COP ion (m) End 1 4.243 3.192 2.121 1.061 0.000 +ve Ber FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber	BIRATION 1 Shear Force (LM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Ming Homent Shear Force (LM) 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. (AN) -11.455 -11.	Send. Homent (NH -m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243s lend. Homent (NH -m) 0.000 0.000 0.000 0.000	dx (mm) -0.6 -0.4 -0.3 -0.1 0.5 from dx (mm) -1.0 -0.7 -0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 -1.8 -4.3 -4.4 -5.9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
* AMAL' **POSIT.** **POSIT.* **POSIT	FOR COP ion (m) End 1 4.243 3.192 2.121 1.061 0.000 +ve Ber FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber	BINATION 1 Shear Force (kM) 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment SINATION 1 Shear Force (kM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. (MM) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kM.s MEMBER 24 Axial Comp. (MM) -34.365 -34.365 -34.365	Send. Homent (NH -m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243s lend. Homent (NH -m) 0.000 0.000 0.000 0.000	dx (mm) -0.6 -0.4 -0.3 -0.1 0.5 from dx (mm) -1.0 -0.7 -0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 -1.8 -4.3 -4.4 -5.9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
PANAL POSIL	FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber FOR COP ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber -ve Ber	BIRATION 1 Shear Force (LM) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Ming Moment ding Moment (LM) 0.000	MEMBER 23 Axial Comp. (AN) -11.455 -11.	Send. Homent (NH -m) 0.000 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243s lend. Homent (NH -m) 0.000 0.000 0.000 0.000	dx (mm) -0.6 -0.4 -0.3 -0.1 0.5 from dx (mm) -1.0 -0.7 -0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 7 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
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Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
Posit. From Jt. 10 0.755. 0.501. 0.251. Jt. 7 Maximum Maximum RESULTS Posit. from Jt. 12 0.751. 0.251. Jt. 9 Maximum RESULTS	FOR CON- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Berve Berd 1.061 0.000 +ve Berve Berve Berve Berve Berve Berve Berve Ber-	BINATION 1 Shear Porce ([M]) 0.000 0.000 0.000 0.000 0.000 ding Homent ding Homent ([KB]) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 0.000 kH. MEMBER 25	Send. Homent (NH m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 a at 4.243 (NH m) 0.000 0.000 0.000 a at 4.243 at 4.243 at 4.243	dx (mm) -0.6 -0.4 -0.3 -0.1 0.0 a from dx (mm) -1.0 0.7 -0.7 -0.4 0.0 0.3	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 7 joint 9 joint 9	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033
* AMAL **RESULTS* **Posit: from the property of the property	FOR COM- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber 1.061 0.000 +ve Ber -ve Ber 1.061 0.000 +ve Ber 1.061 0.000 +ve Ber 1.061 0.000	BINATION 1 Shear Porce (kM) 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment (kM) 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 -34.365 0.000 kH. MEMBER 25 Axial Comp. I (kH) -57.276 -57.276 -57.276	Send. Homent (kN m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 0.000 a at 0.243 Bend. Moment (kN m) 0.000 0.000 a at 4.243 Color of the	dx (mm) -0.6 -0.4 -0.3 -0.1 -0.6 -0.4 -0.3 -0.1 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 9 -7 joint 9 -7 dy (mm) -3.4 -5.9 joint 9 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	Slope (deg) 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.034 45.044 45.044
* AMAL **RESULTS* **Posit: from the property of the property	FOR COM- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber 1.061 0.000 +ve Ber -ve Ber 1.061 0.000 +ve Ber 1.061 0.000 +ve Ber 1.061 0.000	BINATION 1 Shear Porce (kM) 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment (kM) 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.365 -34.365 -34.365 0.000 kH. MEMBER 25 Axial Comp. I (kH) -57.276 -57.276 -57.276	Send. Homent (kN m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 0.000 a at 0.243 Bend. Moment (kN m) 0.000 0.000 a at 4.243 Color of the	dx (mm) -0.6 -0.4 -0.3 -0.1 -0.6 -0.4 -0.3 -0.1 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4 -0.0 -0.7 -0.4	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 9 -7 joint 9 -7 dy (mm) -3.4 -5.9 joint 9 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	Slope (deg) 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.034 45.044 45.044
* AMAL **RESULTS* **Posit: 0.751 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752 0.501 0.752	FOR COM- ion (m) End 1 4.243 3.182 2.121 1.061 0.000 +ve Ber -ve Ber	BINATION 1 Shear Porce (kM) 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment (kM) 0.000	MEMBER 23 Axial Comp. I (kH) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kH. 0.000 kH. MEMBER 24 Axial Comp. I (kH) -34.365 -34.36	Send. Homent (kN m) 0.000 0.000 0.000 0.000 0.000 a at 0.000 0.000 a at 0.243 Bend. Moment (kN m) 0.000 0.000 a at 4.243 Color of the	dx (mm) -0.6 (-0.4 (mm) -0.6 (-0.4 (mm) -1.0 (-0.7 (mm) -1.0 (-0.7 (mm) -1.0 (-0.7 (mm) -1.0 (-0.7 (mm) -1.4 (mm) -1	dy (mm) -6.1 -6.3 -6.5 -6.7 -6.9 joint 7 joint 7 joint 9 -7 joint 9 -7 dy (mm) -3.4 -5.9 joint 9 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	Slope (deg) 45.013 45.013 45.013 45.013 45.013 45.033 45.033 45.033 45.033 45.033 45.033 45.033 45.034 46.044 46.044 45.044 45.044











$$P(D.L) = 0.72 t$$

$$P(L.L) = 0.9 t$$

$$W1 = 0.6 t/m$$

$$W2 = 0.3 t/m$$

60 X 60 X 6 mm

70 X 70 X 7 mm 60 X 60 X 6 mm - قطاع الجمالون كما بالرسم

- قطاع الأعمدة PE 400 -

~ تظهر بيانات ونتائج المنشأ كالاتي :

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* ANALYSE (C)Copyright Computer and Design Services Limited 1985

FRAME GEOMETRY

No. of Joints = 16

MEMBERS					
	End Detail	ls	End 2 Details		
Mem:Jt.:C:	X coord :	Y coord :Jt.:C:	X Coord : Y	Coord :	Length : Slope
No.:no.: :	(m) :	(m) :no.: :	(m) :	(m) :	(m) : (dea)
::-:					
1: 2:P:	0.000 :	3.000 : 4:P:	3.000 :	3.000 :	3.000 : 0.00
2: 4:P:	3.000 ı	3.000 : 6:P:	6.000 :	3.000 :	3.000 : 0.00
3: 6:P:	6.000 :	3.000 : 8:P:	9.000 1	3.000 :	3.000 : 0.00
4: 8:P:	9.000 :	3-000 : 10:P:	12.000 :	3.000 :	3.000 : 0.00
5: 10:P:	12.000 :	3.000 : 12:P:	15.000 :	3.000 :	3.000 : 0.00
6: 12:P:	15.000 :	3.000 : 14:P:	18-000 1	3.000 :	3.000 : 0.00
7: 1:P:	0.000 :	0.000 : 3:P:	3.000 :	0.000 :	3.000 : 0.00
8: 3:P:	3.000 :	0.000 : 5:F:	6.000 z	0.000 :	3.000 : 0.00
9: 5:P:	6.000 :	0.000 : 7:F:	9.000 :	0.000 :	3.000 : 0.00
10: 7:P:	9.000 :	0.000 : 9:F:	12.000 :	0.000 :	3.000 : 0.00
11: 9:P:	12.000 :	0.000 : 11:F:	15.000 :	0.000 :	3.000 : 0.00
12: 11:P:	15.000 :	0.000 : 13:P:	18.000 :	0.000 1	3.000 : 0.00
13: 1:P:	0.000 :	0.000 : 2:F:	0.000 1	3.000 z	3.000 : 90.00
14: 3:P:	3.000 z	0.000 : 4:F:	3.000 1	3.000 t	3.000 : 90.00
15: 5:P:	6.000 2	0.000 : 6:F:	6.000 ı	3.000 :	3.000 : 90.00
16: 7:P:	9.000 :	0.000 : 8:F:	9.000 :	3.000 :	3.000 : 90.00
17: 9:P:	12.000 ;	0.000 : 10:P:	12.000 :	3.000 :	3.000 : 90.00
18: 11:P:	15.000 :	0.000 : 12:F:	15.000 r	3.000 z	3.000 : 90.00
19: 13:F:	18.000 :	0.000 : 14:F:	18.000 :	3.000 :	3.000 : 90.00
20: 2:P:	0.000 :	3.000 : 3:2:	3.000 :	0.000 :	4.243 : -45.00
21: 4:P:	3.000 :	3.000 : 5:P:	6.000 :	0.000 z	4.243 : -45.00
22: 6:P:	6.000 :	3.000 : 7:P:	9.000 :	0.000 :	4.243 : -45.00
23: 7:P:	9.000 :	0.000 : 10:P:	12.000 :	3.000 :	4.243 : 45.00
24: 9:P:	12.000 r	0.000 : 12:P:	15.000 s	3.000 :	4.243 : 45.00
25: 11:P:	15.000 z	0.000 : 14:P:	18.000 s	3.000 :	4.243 : 45.00
26: 15:F:	0.000 :	-6.000 : 1:F:	0.000 :	0.000 z	6.000 : 90.00
27: 16:F:	18.000 :	-6.000 : 13:F:	18.000 :	0.000 :	6.000 : 90.00

TABLE OF SECTIONS

Number :	(cm2):	(cm4):	Ho: D (mm)	Elements (if : B (mm):	Y (mm)
1 :	18.80:	84.8:			
			: :	: :	
	84.50:			: : :	

SUMMARY OF NEWSES PROPERTIES

Member 1 - 6 PRISHATIC : Section Number 1 : Modelns E = 210000.0 M/mm2

Member 7 - 12 PRISHATIC : Section Number 2 : Modelns E = 210000.0 M/mm2

— (Continued on Mext Page)

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· AMALVER	(C)Convelabt Comput	bee re	Dog 1	an S	ervice	ta L	imited	198	15		

SUMMARY OF MEMBER PROPERTIES continued

Member 13 PRISHATIC: Section Number 3: Modulus E = 210000.0 M/mm2

Member 14 - 18 PRISHATIC: Section Number 2: Modulus E = 210000.0 M/mm2

Member 19 PRISHATIC: Section Number 3: Modulus E = 210000.0 M/mm2

Member 20 - 25 PRISHATIC: Section Number 2: Modulus E = 210000.0 M/mm2

Member 26 - 27 PRISHATIC: Section Number 3: Modulus E = 210000.0 M/mm2

No. of Supports = 2

Humber	ı (ldil	/mm) :	(3kH/s	m) :	nguler Restraint (kH.m/redien)
15	. FUL	L	FULL	8	ZENO
16 -	: FUL	L E	PULL		XERO

APPLIED LOADS AND MONESTS

SERVICE IN

SUPPORTS

	SITION Start: Lengt	: LOAD / MONES	T End Value
		6.000 km/=:	

EMBER 19								
OAD ko: Mase	CAS	3	:LOAD:	P O	SITI Start:	O H : Length:	LOAD/M Start Val	OMENT ue: End Valu
3:	WIND	LOAD	: UB :		2	2	3.000 kM	/m:
WHER 26								
No : Name			:Type:		Start:	Length:	LOAD/M Start Val	OMENT ue: End Valu
3:	HIND	LOAD	: UH :		4	3	6.000 km	/m:
MEMBER 27								
LOAD No: Name	CAS	Е	:LOAD: :Type:	P Q	S I T I Start:	OH : Length:	LOAD/M Start Val	OMENT ue: End Valu
3:	MIND	LOAD	: 00 :		1		3.000 ki	I/m:
• • •		A		:	I	NPUT	DATA	* DATE: *SHEET: 3
ANALYS	8 (C)C	pyri	ght Co	aput	er and D	ssign Serv	ices Limited	1985
APPLIED L								
JOINT 2								
LOAD	CAS							
No : Name			:LOAD:	LOA	D / MORGE Value	KT		
No : Name			:Type:		Value			
1: 2:			:Type:		Value		त पहुंच्या प्रदेश कर पहुंच्या प्रदेश कर का स्वर्थ कर का स्वर्थ कर स्वर्थ कर स्वर्थ कर स्वर्थ कर स्वर्थ कर स्वर	de same, glos approvince qui valge plut van sell appl den den seus sals apl same
1: 2: JOINT 4 L O A D No : Hause	Dead LIVE C A S	Load	:Type: :: :: PV : :: PV : :: LOAD: :Type:	LOA	3.600 4.500 0 / NOME	kii kii		
JOINT 4 L O A D Mo : Wame 1: 2:	Dead LIVE C A S Dead LIVE	Load LOAD E	:Type: ::PV : ::PV : ::LOAD: ::Type: ::PV :	LOA	3.600 4.500 0 / NOMS Value 7.200 9.000	ka ka ka ka ka		r oo, de werke op de de ree tij de ree tij de de de een de de de oordeel de d
JOINT 4 LOAD No: Hame	Dead LIVE C A S Dead LIVE	Load LOAD E	:Type: ::PV : ::PV : ::LOAD: ::Type: ::PV :	LOA	3.600 4.500 0 / NOMS Value 7.200 9.000	ka ka ka ka ka		
JOINT 4 L O A D Mo : Wase	Dead LIVE	Load LOAD E Load LOAD	:Type: :I	LOA	3.600 4.500 4.500 Value 7.200 9.000 D / HONES Value 7.200 9.000	kn kn MT kn kn		

_					_											
2:	LIVE	LOAD	: PV	: 	9.	000	KM									
JOINT 8																
LOAD	CAS	Е	LOAD	: LO	AD /	HON	THE									
No : Name			Type													
1:	Dead	Load	: PV	:	7.	200	Te.bii									
2:	LIVE	LOAD	: PV	:	9.	000	kH									
JOINT 10																
LOAD	CAS	8	:LOAD	. 1.0	AD /	мон	RNT									
No : Name			: Type	2	Valu	16										
1:	Dead	Load	: PV	:	7.	200	kN									
1:	LIVE	LOAD	: PV	:	9.	000	1638									
JOINT 12																
LOAD					an /	MORT	TAPE									
No : Name			: Type	:	Valu	te										
:			2	1												
1: 2:	LIVE	LOAD	: PV	:	9.	.000	kii									
			*****		*****			-						28528		
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ANALYSE	5 (C)C	opyri	ght C	Ompu		I	N P	U	T	Di	A T	A	**************************************	JOB DATE SHEET	: CO	LT 4
ANALYSE ANALYSE APPLIED LC OINT 14 L O A D Mo : Name	S (C)CC	ругі	ght C	conput LO	ter s	I HOM	N P	U	T	Di	A T	A	**************************************	JOB DATE SHEET	: CO	LT 4
ANALYSE ANALYSE APPLIED LC OINT 14 L O A D Mo : Name	S (C)CC	ругі	ght C	conput LO	ter s	I HOM	N P	U	T	Di	A T	A	**************************************	JOB DATE SHEET	: CO	LT 4
ANALYSE ANALYSE ANALYSE APPLIED LO TOINT 14 L O A D No : Name 11 2:	C A S	DDYTI	ght C	Conput LO	ter a	I HOM	N P Desi	ga	T	Dice	A T	A	**************************************	JOB DATE SHEET	: CO	4
ANALYSE ANALYS ANA	C A S	DDYTI	ght C	Conput LO	ter a	I HOM	N P Desi	ga	T	Dice	A T	A	**************************************	JOB DATE SHEET	: CO	4
ANALYSE ANALYS ANA	C A S Dead LIVE	ppyri ND NO E Load	ght C	Conputer Con	ter s	I HOM	N P	gn	7 Serv	Dice	A T	A	• • • • • • • • • • • • • • • • • • •	JOB DATE SHEET 85	: CO	4
ANALYSE ANALYSE ANALYSE APPLIED LC JOINT 14 L O A D COMBINATIC	C A S Dead LIVE	DDYTI	ght C	Con LO	ter a description of the terms	I HOM	N P Desi	gn	7 Serv	Dice	A T	A	• • • • • • • • • • • • • • • • • • •	JOB DATE SHEET 85	: CO	4
AMALYSE AMALYS AMALYS AMALYS AMALYS AMALYS AMA	C A S Dead LIVE C A S	DD MO	ght Conservation of the co	Conput Con	ter a tinue	I HOM	N P Desi	gn	7 Serv	Dice	A T	A	• • • • • • • • • • • • • • • • • • •	JOB DATE SHEET 85	: CO	4
ANALYSE ANALYSE APPLIED LC JOINT 14 L O A D	C A S C A S C A S	DDyri BUD HO	ght C	Con	ter a	I HOM	N P Desi	gn	7 Serv	Dice	A T	A	• • • • • • • • • • • • • • • • • • •	JOB DATE SHEET 85	: CO	4

3: WIND LOAD: :1.000

3:

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ANALYSE	(C)Copyr	ight Comput	ter and Desi	gn Services Li	mited 1985	
ESULTS FOR			*********			1202200
oint Displ	acements	and React	ions			
Joint No.	dx(pm)	dy(mm)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	-0.87	-0.16	-0.0004			
2	1.25	-0.25	-0.0009			
3	-0.95	-3.63	-0.0009			
4	0.98	-4.04	-0.C006			
5	-0.60	-6.33	~0.0009			
6	0.52		-0.0004			
7	0.00		-0.8003			
8	0.00	-7.50	0.0000			
9	0.60	-6.33	0.0000			
10	-0.52	-6.58	0.0004			
11	0.95	-3.63	0.0009			
12	-0.98	-4.04	0.0006 0.0004 0.0009			
13	0.87	-0.16	0.0004			
14	-1.25	-0.25	0.0009			
15 16	0.00		0.0004	2.303 -2.303	48.600 48.600	0.000
Summation o	f Forces	and Momen	ts			
		Px (kN)	Py (kN)	Ho (kH.m)		
tember Load		0.000	0.000	0.000		
loint Loads		0.000	-97.200	-674.800		
Reactions			-97.200	-874.800		
Summation			97.200	874.800		
Summation		0.000	0.000	0.000		
RESULTS POP						
		and React				
Joint No.	dx(mm)	dy (mm.)	O(rad)	Px (kH)	Py (kH)	M (kN.m)
1 2	69.04 72.94	-0.10 -0.14	-0.0044 0.0003			
3	69.51	-4.16	-0.0012			
4	72.35	-4.37	-0.0009			
5	70.19	-6.64	-0.0008			
	71.73		-0.0005			
			-0.0002			
6	70.92		-0.0001			
6 7 8	70.92 71.20	-7.30				
6 7	71.20					
6 7 8 9	71.20					
6 7 8 9 10	71.20					
6 7 8 9 10 11	71.20					
6 7 8 9 10 11 12 13	71.20					
6 7 8 9 10 11 12 13	71.20					
6 7 8 9 10 11 12 13	71.20	-5.60 -6.06 -2.80 -3.43 -0.23 -0.35 0.00		-42-176 -38.824	28.350 68.850	0.000

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· ANALYSE	(C)Copyright Comp	uter and Des	ign Service	Limited	1985	
	COMBINATION 2 CO					
	f Forces and Home					
Smartion c						
Nember Load	Px (kH) ln \$1.000	Py (kH) 0.000	Mo (kH.m. 121.50			
Joint Loads	0.000		-874.80			
Reactions	81.000	-97.200	-753.30	-		
Summation	-81.000	97.200	753.30			
Summeton	0.000	0.000	0.00			
				·		
Maxima for						
Load Shear	(kN) Haximum	Axial (kW)	< Be	nding Mom	ent (kN.m)	>
Comb. (Abs.	0.000 35.89	m) (Tension) L 0.000	Max. tve	Pos. (m)	Maxve	Pos. (m)
2	0.000 77.60	0.000	0.000	0.000	0.000	
Maxima for	Hember 2					
Load Shear	(kH) Maximum	Axial (kH)	< Ве	nding Mou	ent (kH.m)	>
Comb. (Abs.	Nax.)(Compression 0.000 60.19	on) (Tension)	Hax. +ve	Pos. (m)	Haxve	Pos. (B)
2	0.000 80.19	0.000	0.000	0.000	0.000	0.000
Maxima for						
Load Shear	(kN) Haximum	Avial (MX)	< Ba	nding Non	ent (kN -)	>
Comb. (Abs.	Max.)(Compression 0.000 68.29	m) (Tension)	Hax.+ve	Pos. (m)	Maxve	Pos. (m)
1 2	0.000 68.29	0.000	0.000	0.000	0.000	0.000
Maxima for	Hember 4					
Load Shear	(kB) Haximum	Axial (kH)	< Be	nding Hom	ent (kH.m)	>
Comb. (Abs.	Hax.)(Compression 0.000 68.29	on) (Tension)	Max.+ve	Pos. (m)		Pos. (m) 0.000
2	0.000 69.50	0.000	0-000	0.000	0.000	
Maxima for	Nesher 5					
			_	. 41 45		
Load Shear Comb. (Abs.	r (KM) Haximum . Max.)(Compressio	Axial (kW)				
1	0.000 60.194	0.000	0.000	0.000	0.000	0.000
2	0.000 41.15		0.000	0.000	0.000	0.000
Maxima for						
Load Shear	(kH) Haximum Hax.)(Compressio	Axial (kH)	Nav. tvo	nding Mos	ent (kN.m)	Pos (=)
1	0.000 35.89	0.000	0.000	0.000	0.000	0.000
2	0.000 0.00	3.398	0.000	0.000	0.000	

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Maxima for Member 7

									ent (kN.m)	
	(ALDO .	0.000	Combressi	on) (re	nstoni	PMX.TVE	POS.	(m)	Maxve	Pos. [m
		0.000	6.90		0.000	0.00	U U.	.000	0.000	0.00
		0.000	0.00		3.328	0.00	U U.	.000	0.000	0.00
		Hember								
bsol	Shear	(kN)	Maximum	Axial	(kN)	<	Bending) Non	ment (kN.m)	
Comb.	(Abs.	Max.)(Compressi	on) (Te	nsion)	Max.+ve	Pos.	(m)	Maxve	Pos. (m
1		0.000	0.00	0 3	3.591	0.00	0 3.	.000	0.000	0.00
2		0.000	0.00	0 6	5.778	0.00	0 0.	.000	0.000	3.00
		Hember								
Load	Shear	(kN)	Maximum	Axial	(kH)	<	Bendin	g Mor	ment (kN.m)	
Comb.	(Abs.	Max.)(Compressi	on) (Te	nsion)	Max.+ve	Pos.	(m)	Naxve	Pos. (m
1		0.000	0.00	0 5	7.891	0.00	0 0.	.000	0.000	3.00
2		0.000	0.00	0 6	9.828	0.00	0 3.	.006	0.000	0.00
		Hember								
Load	Shear	(10)	Maximum	Axial	(RH)	<	Bendin	g Hos	ment (kH.m)	
and the same										
Comb.	(Abs.	Max.)(Compressi	on) (Te	nsion)	Max.+ve	Pos.	(m)	Maxve	Pos. (m
Comb.	(Abs.	Max.)(Compressi	on) (Te	nsion)	Max.+ve 0.00	Pos.	(m) 000.	Maxve 0.000	Pos. (m 3.00
Comb. 1 2	(Abs.	Max.)(0.000 0.000	Compressi 0.00 0.00	on) (Te 0 5 0 2	nsion) 7.891 9.328	0.00	0 0	.000	0.000	3.00
Comb.	(Abs.	Max.)(0.000 0.000	Compressi 0.00 0.00	on) (Te 0 5 0 2	nsion) 7.891 9.328	0.00	0 0	.000	Maxve 0.000 0.000	3.00
Comb. 1 2 Maxim	(Abs.	Max.)(0.000 0.000 Member (kN)	0.00 0.00 0.00	on) (Te 0 5 0 2	nsion) 7.891 9.328	0.00 0.00	0 0. 0 0. Bendin	.000 .000	0.000 0.000	3.00
Comb. 1 2 Maxim Load Comb.	(Abs.	Max.)(0.000 0.000 Member (KN) Max.)(Compressi 0.00 0.00 11 Maximum Compressi	on) (Te 0 5 0 2 Axial	nsion) 7.891 9.328 (kN) nsion)	0.00 0.00	Bending	.000 .000 .000	0.000 0.000 ment (kH.m)	3.00 3.00
Comb. 1 2 Maxim Load Comb.	(Abs.	Max.)(0.000 0.000 Member (KN) Max.)(Compressi 0.00 0.00 11 Maximum Compressi	on) (Te 0 5 0 2 Axial	nsion) 7.891 9.328 (kN) nsion)	0.00 0.00	Bending	.000 .000 .000	0.000 0.000 ment (kH.m)	3.00 3.00
Comb. 1 2 Maxim Load Comb.	(Abs.	Max.)(0.000 0.000 Member (KN) Max.)(Compressi 0.00 0.00 11 Maximum Compressi	on) (Te 0 5 0 2 Axial	nsion) 7.891 9.328 (kN) nsion)	0.00 0.00	Bending	.000 .000 .000	0.000 0.000 ment (kH.m)	3.00 3.00
Comb. 1 2 Maxim Load Comb. 1 2	(Abs.	Max.)(0.000 0.000 Member (KN) Max.)(Compressi 0.00 0.00 11 Maximum Compressi 0.00 15.22	on) (Te 0 5 0 2 Axial	nsion) 7.891 9.328 (kN) nsion)	0.00 0.00	Bending	.000 .000 .000	0.000 0.000	3.00 3.00
Comb. 1 2 Maxim Load Comb. 1 2 Maxis	Abe. Shear (Abe. a for Shear	Max.)(0.000 0.000 Member (kH) Max.)(0.000 0.000 Member	Compressi 0.00 0.00 11 Maximum Compressi 0.00 15.22	On) (Te 0 5 0 2 	(kN) 7.891 9.328 (kN) nsion) 3.591 0.000	0.00 0.00 	Bending	(m)	0.000 0.000 0.000 Maxve 0.000 0.000	3.00 3.00 Pos. (# 3.00 0.00
Comb. 1 2 Maxim Load Comb. 1 2 Maxim	Abs. a for Shear (Abs. a for Shear (Abs.	Max.)(0.000 0.000 Member (kH) Hax.)(0.000 Member (kH)	Compressi 0.00 0.00 11 Maximum Compressi 12 Maximum Compressi	On) (Te 0 5 0 2 	(kN) nsion) 7.891 9.328 (kN) nsion) 3.591 0.000 (kN)	0.00 0.00 	Bending Pos. 0 0 3	.000 .000 (m) .000 .000	0.000 0.000 ment (km.m) Maxve 0.000 0.000	3.00 3.00 Pos. (# 3.00 0.00
Comb. 1 2 Maxim Load Comb. 1 2 Maxim	Abs. a for Shear (Abs. a for Shear (Abs.	Max.)(0.000 0.000 Member (kH) Hax.)(0.000 Member (kH)	Compressi 0.00 0.00 11 Maximum Compressi 12 Maximum Compressi	On) (Te 0 5 0 2 	(kN) nsion) 7.891 9.328 (kN) nsion) 3.591 0.000 (kN)	0.00 0.00 	Bending Pos. 0 0 3	.000 .000 (m) .000 .000	0.000 0.000 ment (km.m) Maxve 0.000 0.000	3.00 3.00 Pos. (# 3.00 0.00
Comb. 1 2 Maxim Load Comb. 1 2 Maxim Load Comb. 1 2	Abs. a for Shear (Abs. a for Shear (Abs.	Hax.)(0.000 0.000 Member (kN) Hax.)(0.000 0.000 (kN) Hax.)(0.000 0.000	Compressi 0.00 0.11 Maxistus Compressi 0.00 15.22 12 Maxistus Compressi 6.90 75.97	on) (Te 0 5 0 2 2 Axial on) (Te 9 2 2	(kW) nsion) (kW) nsion) 3.591 0.000 (kW) nsion) 0.000 0.000	0.00 0.00 	Bending Pos. Bending Pos. Bending Bending Pos. Bending	(m) .000 (m) .000 .000 .000 (m) .000	0.000 0.000 0.000 Maxve 0.000 0.000 Ment (kN.m) Maxve 0.000	3.00 3.00 90s. (# 0.00 90s. (#
Comb. 1 2 Maxim Load Comb. 1 2 Maxim Load Comb. 1 1 2	Abs. Shear (Abs. A for Shear (Abs.	Hax.)(0.000 0.000 Member (kN) Hax.)(0.000 0.000 (kN) Hax.)(0.000 0.000	Compressi 0.00 0.00 11 Maximum Compressi 0.00 15.22 12 Maximum Compressi 6.90 75.97	on) (Te 0 5 0 2 2 Axial on) (Te 9 2 2	(kW) nsion) (kW) nsion) 3.591 0.000 (kW) nsion) 0.000 0.000	0.00 0.00 	Bending Pos. Bending Pos. Bending Bending Pos. Bending	(m) .000 (m) .000 .000 .000 (m) .000	0.000 0.000 ment (km.m) Maxve 0.000 0.000	3.00 3.00 90s. (# 0.00 90s. (#
Maxim Load Comb. 1 2 Maxim Load Comb. 1 2 Maxim Load Load Load Load Load	Abe. Shear (Abs. Shear (Abs. a for (Abs.	Max.)(0.000 0.000 Member (kN) Member (kN) Member (kN) Max.)(0.000 0.000 Member (kN) Max.)(1.000 0.000 Member (kN) Member (kN)	Compressi 0.00 11 Maximum Compressi 0.00 15.22 12 Maximum Compressi 6.90 75.97	Axial On) (Te O 2 Axial On) (Te O 3 2 Axial On) (Te 9 2 Axial	(kH) nsion) 3.591 0.000 (kH) nsion) 0.000 0.000	Max.+ve 0.00 0.00 0.00	Bendine Pos. 0 0 3 Bendine Pos. 0 0 0 Bendine	.000 .000 (m) .000 .000 (m) .000	0.000 0.000 Maxve 0.000 0.000 Ment (kN.m) Maxve 0.000	3.00 3.00 90s. (s 3.00 0.00 0.00
Maxim Load Comb. 1 2 Maxim Load Comb. 1 2 Maxim Load Comb. 1 Load Comb.	Abe. a for Shear (Abs. Shear (Abs.	Hax.)(0.000 0.000 Member (kH) Hax.)(0.000 0.000 Member (kH) Hax.)(0.000 0.000 0.000 d.000	Compression Compression 6.90 75.97	on) (Te o S o S o S o S o S o S o S o S o S o	(kN) nsion) 7.891 9.328 (kN) nsion) 3.591 0.000 (kN) nsion) (kN)	0.00 0.00 Maxve 0.00 0.00	Bending Pos. Bending Pos. Bending Pos. Bending Bending	(m) .000 (m) .000 .000 (m) .000	0.000 0.000 ment (kH.m) Maxve 0.000 ment (kN.m) Maxve 0.000 0.000	3.00 3.00 Pos. (# 3.00 0.00 0.00
Maxim Load Comb. 1 2 Maxim Load Comb. 1 2 Maxim Load Comb. 1 Load Comb.	Abe. a for Shear (Abs. Shear (Abs.	Hax.)(0.000 0.000 Member (kH) Hax.)(0.000 0.000 Member (kH) Hax.)(0.000 0.000 0.000 d.000	Compression Compression 6.90 75.97	on) (Te 0 5 0 2 2	(kN) nsion) 7.891 9.328 (kN) nsion) 3.591 0.000 (kN) nsion) (kN)	0.00 0.00 Maxve 0.00 0.00	Bending Pos. Bending Pos. Bending Pos. Bending Bending	(m) .000 (m) .000 .000 (m) .000	0.000 0.000 Maxve 0.000 0.000 Ment (kN.m) Maxve 0.000	3.00 3.00 Pos. (# 3.00 0.00 0.00

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taxim	a for	Heaber	14					
Load	Shear	(kH)	Maximum Axi	ial (kW) 🖪	< Be	ending Hom	ent (kN.m)	
Comb.	{Abs.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1 2		0.000	40.500 20.250	0.000	0.000	3.000	0.000	0.000
		Hember						
			Maximum Ax.					
		Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
2		0.000	24.300	0.000	0.000	3.000	0.000	3.000
		0.000	4.050	0.000	0.000		0.000	
Maxim	a for	Member						
Load	Shear	(kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ment (kN.m)	
Comb.	(Abs.	Hax.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1		0.000	16.200	0.000	0.000	0.000	0.000	3.00
2		D.000	16.200 16.200	0.000	0.000	3.000	0.000	0.00
		Member						
Lond	Shear	(IdN)	Maximum Ax	ial (kW)	< Be	ending Mon	ent (kN.m)	
Comb.	(Abs.	Hax.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Haxve	Pos. (m
1		0.000	24.300 44.550	0.000	0.000	0.000	0.000	3.00
		0.000				0.000	0.000	3.00
	a for							
		. renewal	7.0					
Load	Shear	(icN)	Maximum Ax	ial (kN)	< Be	anding Mor	uent (kN.m)	
Comb.	(Abs.	(kN) Max.)	Maximum Ax (Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
Comb.	(Abs.	(kN) Max.)	Maximum Ax (Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
Comb.	(Abs.	(kN) Max.) 0.000	Maximum Ax (Compression) 40.500 60.750	(Tension) 0.000 0.000	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000	Maxve 0.000 0.000	Pos. (m 3.00
1 2	(Abs.	(kN) Max.) 0.000	Maximum Ax (Compression) 40.500 60.750	(Tension) 0.000 0.000	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000	Maxve 0.000 0.000	Pos. (m 3.00
Comb. 1 2 Maxim	(Abs.	(KN) Max.) 0.000 0.000 Hember	Maximum Ax (Compression) 40.500 60.750	(Tension) 0.000 0.000	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000	Maxve 0.000 0.000	Pos. (m 3.00 0.00
Comb.	Abs.	(kN) Max.) 0.000 0.000 Member (kN) Max.)	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression)	(Tension) 0.000 0.000 ial (kH) (Tension)	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000 ending Mos Pos. (m)	Maxve 0.000 0.000 ment (kN.m) Maxve	Pos. (m 3.00 0.00 Pos. (m
Comb. 1 2 Naxim	(Abs.	(kN) Max.) 0.000 0.000 Hember (kN) Max.)	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression) 40.600	(Tension) 0.000 0.000 ial (kN) (Tension) 0.000	Nax.+ve 0.000 0.000 	Pos. (m) 0.000 3.000 ending Mos Pos. (m) 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000	Pos. (m 3.00 0.00 Pos. (m
Maxim	(Abs.	(kN) Max.) 0.000 0.000 Hember (kN) Max.)	Maximum Ax (Compression) 40.500 60.750	(Tension) 0.000 0.000 ial (kN) (Tension) 0.000	Max.+ve 0.000 0.000 	Pos. (m) 0.000 3.000 ending Mos Pos. (m) 0.000 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000 0.000	Pos. (m 3.00 0.00 Pos. (m 3.00 3.00
Comb. 1 2 Maxim	(Abs.	(kN) Max.) 0.000 0.000 Hember (kN) Max.)	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression) 48.600 68.850	(Tension) 0.000 0.000 ial (kN) (Tension) 0.000	Max.+ve 0.000 0.000 	Pos. (m) 0.000 3.000 ending Mos Pos. (m) 0.000 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000	Pos. (m 3.00 0.00 Pos. (m 3.00 3.00
Comb. 1 2 Haxim Load Comb. 1 2	Abs. Shear (Abs.	(kN) Max.) 0.000 0.000 Howber (kN) Max.) -4.606 64.148	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression) 48.600 68.850	(Tension) 0.000 0.000 ial (kN) (Tension) 0.000	Max.+ve 0.000 0.000 	Pos. (m) 0.000 3.000 ending Mon Pos. (m) 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000 0.000	Pos. (m 3.00 0.00 Pos. (m 3.00 3.00
Comb. 1 2 Naxim Load Comb. 1 2 Maxim	Abs. Shear (Abs.	(kN) Max.) 0.000 0.000 Nomber (kN) Max.) -4.606 64.148 Member (kN)	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression) 46.600 68.850 20 Maximum Ax (Compression)	(Tension) 0.000 0.000 ial (kH) (Tension) 0.000 0.000	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000 ending Mos Pos. (m) 0.000 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000 0.000	Pos. (m 3.00 0.00 Pos. (m 3.00 3.00
Comb. 1 2 Maxim Load Comb. 1 2 Maxim	Abs. Shear (Abs.	(kN) Max.) 0.000 0.000 Nomber (kN) Max.) -4.606 64.148 Member (kN)	Maximum Ax (Compression) 40.500 60.750 19 Maximum Ax (Compression) 48.600 68.850	(Tension) 0.000 0.000 ial (kH) (Tension) 0.000 0.000	Max.+ve 0.000 0.000	Pos. (m) 0.000 3.000 ending Mos Pos. (m) 0.000 0.000	Maxve 0.000 0.000 ment (kN.m) Maxve 0.000 0.000	Pos. (m 3.00i 0.00i Pos. (m 3.00i 3.00i

Maxima for Number 22 Load Shear (kN) Maximum Axial (kN)	,							* JOB : 0	
**ANALYSE (C)Copyright Computer and Design Services Limited 1985 **ANALYSE (C)Copyright Computer and Design Services Limited (kN m)									
ANALYSE (C)Copyright Computer and Design Services Limited 1985 Maxima for Member 21 Load Shear (kM)	,								
ANALYSE (C)Copyright Computer and Design Services Limited 1985** **ANALYSE** (C)Copyright Computer and Design Services Limited 1985** **ANALYSE** (RM)				•	ANALY				9
Maxima for Member 21 Maximum Axial (kH) C	ANA	LYSE (C)Copyr	ight Compute	r and Desi	gn Service	s Limited	1985	
Comb. (Abs. Max.) (Compression) (Tension) Max. +ve Pos. (a) Maxve Pos.									
1 0.000 0.000 34.365 0.000 4.243 0.000 0.4 2 0.000 5.728 0.000 4.243 0.000 0.4 Maxima for Member 22 Load Shear (kH) Maximum Axial (kH) <	oad	Shear	(lest)	Maximum Axi	al (kH)	Be	ending Hom	ent (kN.m)	
Load Shear (kN) Haximum Axial (kN) <		(Abs.	Hax.)(C	ompression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
Load Shear (kN) Haximum Axial (kN) <			0.000	0.000	5.728	0.000	4.243	0.000	0.00
Doad Shear (kk)									
Comb. (Abs. Max.) (Compression) (Tension) Max. vere Pos. (m) Max. vere Pos. (m) 1				-		_			
1 0.000 0.000 11.455 0.000 4.243 0.000 0.428 0.000 17.183 0.000 0.000 4.243 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.428 0.000 0.000 12.455 0.000 0.000 0.000 12.455 0.000 0.000 0.000 0.000 4.28 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000	Load	Shear	(XH)	Maximum Axi	rar (KH)	Man Jara	enging Mos	ent (KN.H)	Bos /s
2 0.000 17.183 0.000 0.000 4.243 0.000 0.000 0.000 17.183 0.0000 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000		(ADB -	Max.)(L	ombiesaron)	(Tension)	MEX. PVE	4 743	0.000	0 00
Maxima for Member 23 Load Shear (kH) Maximum Axial (kH) <			0.000	17.183	0.000	0.000	4.243	0.000	0.00
Load Shear (kN)									
Comb. (Abs. Max.) (Compression) (Tension) Maxve Pos. (a) Maxve Pos. 1 0.000 0.000 1.455 0.000 0.000 0.000 4.					tal chart .		andias Mon		
1 0.000 0.000 11.455 0.000 0.000 0.000 4. 2 0.000 0.000 40.093 0.000 0.000 0.000 4. Maxima for Hember 24 Load Shear (kN) Haximum Axiel (kN) <	Load	Snear	(KN)	maximum Axi	(Tonnion)	May Ame	maing mos	May -wo	Bos (s
Asxima for Hember 24 Load Shear (kN) Haximum Axial (kN)		(yma.	Mex.III	Ombression)	11 455	DOA.TVE	0 000	0 000	4 74
Asxima for Hember 24 Load Shear (kN) Haximum Axial (kN)			0.000	0.000	48.093	0.000	0.000	0.000	4.24
Load Shear KN Maximum Axial (kN									
Comb. (Abs. Max.) (Compression) (Tension) Maxvue Pos. (m) Maxvue Pos. 1. 0.000 0.000 34.365 0.000 0.000 0.000 4.2 0.000 0.000 63.003 0.000 0.000 0.000 4.2 0.000 0.000 63.003 0.000 0.000 0.000 4.3 0.000 0.000 0.000 0.000 0.000 4.3 0.000									
1 0.000 0.000 34.365 0.000 0.000 0.000 4. 2 0.000 0.000 63.003 0.000 0.000 0.000 4. Maxima for Member 25 Load Shear (kH) Maximum Axial (kH) <	Load	Shear	(kN)	Haximum Ax	ial (kN)	C B	ending Mom	ent (kN.m)	
2 0.000 0.000 63.003 0.000 0.000 0.000 4. Maxima for Nember 25 Load Shear (kH) Maximum Axial (kH) <		(ADS.	Max.)(compression)	(Tension)	Max.+ve	POS. (M)	Maxve	Pos. (E
Maxima for Member 25 Load Shear (kH)			0.000	0.000	63 003	0.000	0.000	0.000	4.24
Load Shear (kH) Maximum Axial (kH) <								0.000	
Comb. (Abs. Max.) (Compression) (Tension) Maxve Pos. (m) Maxve Pos. 1 1 0.000 0.000 57.276 0.000 0.000 0.000 0.000 0.000 4. 2 0.000 0.000 85.913 0.000 0.000 0.000 4. Maxima for Nember 26 Load Shear (kM) Naximum Axial (kM) <		-							
1 0.000 0.000 57.276 0.000 0.000 0.000 1.000 4. 2 0.000 0.000 85.913 0.000 0.000 0.000 4. Maxima for Member 26 Load Shear (kM) Maximum Axial (kM)									
Maximan for Nember 26 Load Shear (kM) Maximum Axial (kM) Comp. Bending Moment (kN.m) Comb. (Abs. Max.) (Compression) (Tension) Max.+ve Pos. (m) Maxve Pos. 1 -2.303 48.600 0.000 0.000 0.000 0.301 0.3819 6. 2 42.176 28.350 0.000 145.057 6.000 0.000 0. Maximum Aximum	Comb.	(Abs.	Max.)(0	Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (s
Maximan for Nember 26 Load Shear (kM) Maximum Axial (kM) Comp. Bending Moment (kN.m) Comb. (Abs. Max.) (Compression) (Tension) Max.+ve Pos. (m) Maxve Pos. 1 -2.303 48.600 0.000 0.000 0.000 0.301 0.3819 6. 2 42.176 28.350 0.000 145.057 6.000 0.000 0. Maximum Aximum	1		0.000	0.000	57.276	0.000	0.000	0.000	4.24
Load Shear (kM) Naximum Axial (kM) <			0.000	0.000	85.913	0.000	0.000	0.000	4.24
Comb. (Abs. Max.) (Compression) (Tension) Max.+ve Pow. (m) Maxve Pos. 1 2.303 (abs.)	Naxim	for l	Hember :	26					
1 -2.303 48.600 0.000 0.000 0.000 -13.819 6. 2 42.176 28.350 0.000 145.057 6.000 0.000 0. Maxima for Nember 27 Load Shear (kN) Maximum Axial (kN) < Bending Moment (kN.m) Comb. (Abs. Max.) (Compression) (Tension) Max.+ve Pos. (m) Maxve Pos.									
2 42.176 28.350 0.000 145.057 6.000 0.000 0. Haxima for Member 27 Load Shear (kN) Haximum Axial (kN) < Bending Moment (kN.m) Comb. (Aba. Max.) (Compression) (Tension) Hax.+ve Pos. (m) Haxve Pos.	comb.	(ADS.	Bax.)((compression)	(Tension)	PAR. +ve	POS. (M)	MAXVe	POS. (F
Maxima for Member 27 Load Sher (kN) Maximum Axial (kN) < Bending Moment (kN.m) Comb. (Abs. Max.) (Compression) (Tension) Max.+ve Pos. (m) Maxve Pos.	2		42.176	28.350	0.000	145.057	6.000	-13.818	0.00
Load Shear (kN) Maximum Axial (kN) < Bending Moment (kN.m) Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Maxve Pos.									
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (a) Maxve Pos.									
	Load	Shear	(k#)	Maximum Ax.	ial (kN)	< B	ending Mor	ment (kN.m)	
1 2.303 48.500 0.000 13.819 6.000 0.000 0.									
			2.303	48.600	0.000	13.819	6.000	0.000	

			*			* JOB : C	
			*			* DATE:	
			* AWALYSIS			*SHEET:	10
ANALY	SE (C)C	opvright Comp	uter and Design Se	rvices Limi	ited 1	1985	
		BINATION 1	MEMBER 1	*******			
Positi	on (m)	Shear Force	Axial Comp. Bend	.Moment	dx	dy	Slope
fros	End 1	(kal)	(kil) 35-894 35-894 35-894 35-894	(kN.m) 0.000 0.000 0.000 0.000	(mm)	(mm)	(deg)
IE. 4	3.000	0.000	35.894	0.000	1.0	-4-0	-0.073
. 751.	2.250	0.000	35.894	0.000	1.0	-3.1	-0.07
SOT.	1 500	0.000	35 894	0.000	1 1	-2.1	-0.07
257	0 750	0.000	35 894	0.000	1 2	-1 2	-0.07
re 3	0.750	0.000	35.894	0.000	1.2	0.7	-0.07
							-0.07
faximum	+ve Ber	ding Moment	0.000 kW.m at 0.000 kW.m at	0.000m	from	joint 2	
WEIMIN	-ve ser	diding Moment	U.OUU KN.M AC	U.000m	Tron	Joint 2	
Positi	ion (m)	Shear Force	Axial.Comp. Bend (kN) 60.194 60.194 60.194 60.194 60.194	.Moment	dx	dy	Slop
from	End 1	(kH)	(kN)	(kN.m)	(PM)	(HOSPA)	(deg
It. 6	3.000	0.000	60.194	0.000	0.5	-6.6	-0.04
).75L	2.250	0.000	60.194	0.000	0.6	-5.9	-0.04
. 50T.	1.500	0.000	60.194	0.000	0.7	-9.3	-0.04
1.251.	0.750	0.000	60.194	0.000	0.9	-4.7	-0.04
It. 4	0.000	0.000	60-194	0.000	1.0	-4.0	-0.04
deximum	-ve Ber	ding Moment	0.000 kN.m at 0.000 kN.m at	0.000m	from	ioint 4	
						702110 4	
		BINATION 1					
Posit:	Lon (m)	Shear Force	Axial Comp. Bend	.Homent	dx	dy	Slop
from	m End 1	(Jdf)	(kW)	(KH.m)	(1000)	(mm)	(deg
JE. 8	3.000	0.000	68.294	0.000	0.0	-7.5	-0.01
75L	2.250	0.000	68.294	0.000	0.1	-7.3	-0.01
0.50L	1.500	0.000	68.294	0.000	0.3	-7.0	-0.01
3.25L	0.750	0.000	68.294	0.000	0.4	-6.8	-0.01
7t. 6	0.000	0.000	Axial Comp. Bend (kH) 68.294 68.294 68.294 68.294 68.294	0.060	0.5	-6.6	-0.01
Haximum	+ve Ber	ding Moment	0.000 kM.m.at	0.000m	from	ioint 6	
Maximum	-ve Ber	ding Moment	0.000 kN.m at 0.000 kN.m at	0.000m	from	joint 6	
		ABINATION 1	MEMBER 4				
KESULTS							
	ion (m)	Shear Force	Axial Comp. Bend	Monent	4-	des	Slope

(kM) 0.000 0.000 0.000		(kN) 68.294 68.294 68.294	(kn.m) 0.000 0.000 0.000	(mm) -0.5 -0.4 -0.3	(mm) -6.6 -6.8	(deg) 0.018 0.018
0.000	_	68.294	0.000	-0.4	-6.8	0.018
0.000						
	-44	68.294	0.000	-0.2		
0 000					-7.0	0018
		68.294	0.000	-0.1	-7.3	0.018
0.000		68.294	0.000	0.0	-7.5	0.018
ding Moment		0.000 km.m at	0.000m	from	joint 8	
ding Moment		0.000 km.m at				
	ding Moment ding Moment			ding Moment 0.000 kW.m at 0.000m	ding Moment 0.000 kW.m at 0.000m from	ding Moment 0.000 kM.m at 0.000m from joint 8

•			4	***************		* JOB : CO	LT
*			*			* DATE:	
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•				SIS RESU			11
ANAL	YSE (C)C	opyright Com	puter and Desi	gn Services Lim	ited :	1985	
		BINATION 1					
	ion (m)			Bend. Homent	dx	dy	Slope
from	m End 1	(JcH)	(IcH)	(kN.m) 0.000	(mm)	(mm)	(deg)
	3.000						
75L	2.250	0.000			-0.9	-4.7	
7.50L	1.500	0.000	60.194	0.000	-0.7 -0.6	-5.3	0.048
7.25L		0.000	. 60.194	0.000		-5.9	0.048
r. 10	0.000	0.000	50.194	0.000	-0.5	-6.6	0.041
aximum	tve Ben	ding Moment	0.000 kH	.m at 0.000m	from	joint 10	
Saximum	-ve Ben	ding Moment	0.000 km	.m at 0.000s	from	joint 10	
		BINATION 1					
	ion (m)			Bend. Moment	dx	dy	Slope
	m End 1		(kii)	(kH.m) 0.000	(mm)	(mm) -0.2	(deg)
It. 14	3.000	0.000	35.894	0.000	-1.2	-0.2	
).75L	2.250 1.500	0.008	35.894	0.000	-1.2		0.073
		0.000	35.894				0.07
1.255	0.750	0.000	35.894	0.000			0.07
rc. 12	0.000	0.000	35.894	0.000	-1-0	-4.0	0.073
Caximum	+ve Ben	ding Homent	0.000 kM	.m at 0.000m	from	joint 12	
****	-AE DOI	ding homent	0.000 KN	-m at 0.000m	ITOM	Joint 12	
RESULTS	FOR COM	BINATION 1	MEMBER 7				
	ion (m)			Bend . Moment	dx	dv	Slope
		(kN)			(mm)		(deg)
fro	m End 1						
from	3.000	0.000	6.909	0.000		-3.6	
from 1t. 3 1.75L	3.000	0.000	6.909	0.000	-0.9	-2.8	-0.06
from 1t. 3 0.75L 0.50L	3.000 2.250 1.500	0.000 0.000 0.000	6.909	0.000	-0.9	-2.8 -1.9	-0.06
from t. 3	3.000	0.000 0.000 0.000	6.909 6.909	0.000	-0.9	-2.8 -1.9 -1.0	-0.06

**												
Maximum	-WE BEI	nding M	oment.	0.	000	KN . H	at.	0.000m	from	joint	1	
LAVIMON	-46 06	antild to	DENGTI C		.000			0.000m	FEOM	JOINE		
RESULTS	POR CO	MBINATI	DBT 1.	MEMBER	8							
Boods		ah		Bar 1 - 3					4-		4	
POSIT	100 (m)	Snear	rorce	WEIST	Comp	p. H	end.	Moment	dx.		dy	STobe
.Tr. 5	3 000		0000		23 51			0.000	-0.5	-6	=;	-0.057
0.75L	2.250		0.000	_	33.5	91		0.000	-0.7	-5	. 7	-0.052
0.SOL	1.500		0.000	-	33.5	91		0.000	-0.8	-5	. 0	-0.052
0.25L	0.750		0.000	-3	33.59	91		0.000	-0.9	-4	1.3	-0.052
Jt. 3	0.000		0.000	-	33.5	91		(km.m) 0.000 0.000 0.000 0.000 0.000	-0.9	-3	- 6	-0.052
Maximum	-ve Be	nding M	oment.	0	.000	kN.m	at	3.000m 0.000m	from	joint	3	
:										* JOB	: 0	OLT
*										• DATE		
•					A 1.	v e	7 6	RESUI	7 6			
*												14
								rvices Lim				
RESULTS												
POSIT	100 (m)	Snear	rorce	Waret	Com	p. B	end.	Moment	dx		dy	Slope
Jt. 7	3.000		0.000		57 R	91		0.000	0.0	- 7	2 3	~0.019
0.75%	2.250		0.000		57.89	91		0.000	-0.3	- 1	1 1	-0.019
0.50L	1.500		0.000	_	57.8	91		0.000	-0.3	-6	. a	-0.019
0.25L	0.750		0.000		57.8	91		0.000	-0.4	-6	. 6	-0.019
Jt. S	0.000		0.000	-	57.85	91		Noment (kW.m) 0.000 0.000 0.000 0.000	-0.6	-6	3	-0.019
MAXAMUM	+ve Be	nding M	oment.		-000	kM.s	at	0.000m 3.000m	From	joint	5	
MAX LINE	-ve be	natud w	oment	U	- 600	KN.E	38	3.000m	LLOW	Jorne	5	
RESULTS												
Posit.	ion (m)	Shear	Force	Axial	Comp	p. B	end.	Homent (kN.m) 0.000 0.000 0.000 0.000 0.000	dx		dy	Slope
fro	n End 1		(JcH)		(kl	6)		(kH.m)	(mm)	(B	nen)	(deg)
Jt. 9	3.000		0.000	-	57.89	91		0.000	0.6	~6	.3	0.019
0.75L	2.250		0.000	-	57.85	91		0.000	0.4	~6	-6	0.019
0.30L	1.500		0.000	-	0/-89	91 2		0.000	0.3	-6	. 8	0.019
U.23L	0.750		0.000	-	37.85	91		0.000	0.1	-7	1.1	0.019
oc. /	0.000		0.000	-:	o/.89	1.5		0.000	0.0	~7	. 3	0.019
Marian	-V0 24	nding M	DESCRIPTION OF THE PERSON OF T	0	000	LW -	38	0.000m 3.000m	(FOG)	joint	7	
	-ve 200	many M	OMMETT C		. 000	KB -	38	3.000m	TLOS	lorus	′	
RESULTS	FOR CO	MBINATI	OH 1	HEMBER								
Pos i +	ion (=)	Checo	Forms	hwd r 1	Corr			Mamanh				
fra	Red 1	onder	(PR)	WEIGH	410	p. 8	will.	Homent (kH.m)	OX.		dy m.)	

rt. 11			-33.591				-3.		
251.	3.000	0.000	-33.591		0.000	0.9	-4.		
SOL	1 500	0.000	-33.591 -33.591		0.000	0.9	5		0.052
351	1.500	0.000	-33.591		0.000	0.7	-5.	. 7	0.052
rt. 9	0.000	0.000	-33.591		0.000	0.6	-6.	. i	0.052
laximum Jaximum	-ve Ben	ding Moment ding Moment	0.000 k	W.m at W.m at	0.000m 3.000m	from	joint joint	9	
ESULTS	FOR COM	BINATION 1	MEMBER 12						
Positi	ion (m)	Shear Force	Axial Comp.	Bend.	Howent	dx		dy	Slope
from	m End 1	(kii) 0.000 0.000 0.000 0.000 0.000	(kH)		():III.m)	(mm)	(un	=)	(deg)
t. 13	3.000	0.000	6.909		0.000	0.9	-0	.2	0.066
. 751.	2.250	0.000	6.909		0.000	0.9	-1.	- 0	0.066
. 50%	1.500	0.000	6.909		0.000	0.9	-1.	. 9	0.066
1.251.	0.750	0.000	6.909		0.000	0.9	-2	- 8	0.066
le. 11	0.000	0.000	6.909		0.000	0.9	-3	. 6	0.066
And Inches	THE DOLL	ding Moment	0.000 k	M m at	0.000	from	10100	11	
		***********			1846400004	p::::4:4	• A. A. W. B. A. Y.		
	******						+ JOB	- CC	DI.T
	******						• ЈОВ	: C0	DLT
	******		*				• JOB • DATE	: C0	OLT
	******		*				• JOB • DATE	: C0	OLT
		**************	* A N A L Y		RESU	LTS	* JOB * DATE *SHEET	: C0	DLT 13
	488 (C)(* ANALY	SIS	R R S U	L T S	* JOB * DATE *SHEET	: C0	13
ARAL	YSB (C)C	Vanuariaht Com	* ANALY	SIS	R R S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL	YSE (C)C	Copyright Com	* A M A L Y	SIS	R E S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL	YSE (C)C	Copyright Com	* A M A L Y	SIS	R E S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL	YSE (C)C	Copyright Com	* A M A L Y	SIS	R E S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL	YSE (C)C	Copyright Com	* A M A L Y	SIS	R E S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL	YSE (C)C	Copyright Com	* A M A L Y	SIS	R E S U	L T S	* JOB * DATE *SHEET	: C0	13
ANAL- RESULTS Posit fro jt. 2 0.75L 0.50L 0.25L	YSE (C)C FOR COP ion (m) End 1 3.000 2.250 1.500 0.750	Copyright Com 4BINATION 1 Shear Force (kg) 4.066 4.666 4.666 4.666	* A N A L Y puter and Des MEMBER 13 Axial Comp. (kg) 48.600 48.600 48.600	SIS	R E S U vices Lim Noment (NN.m) 0.000 -3.455 -6.909 -10.364	dx (mm) 1.2 0.6 0.00 ~0.5	* JOB * DATE * SHEET 1985 -0 -0 -0	dy (m)	13 Slope (deg) 89.95; 89.95; 89.95;
ANAL- RESULTS Posit fro jt. 2 0.75L 0.50L 0.25L	YSE (C)C	Copyright Com 4BINATION 1 Shear Force (kg) 4.066 4.666 4.666 4.666	* A M A L Y	SIS	R E S U vices Lim Noment (NN.m) 0.000 -3.455 -6.909 -10.364	dx (mm) 1.2 0.6 0.00 ~0.5	* JOB * DATE * SHEET 1985 -0 -0 -0	: C0	13 Slope (deg) 89.95; 89.95; 89.95;
Posit fro 1.25L 2.25L 1	YSE (C)C FOR COP ion (m) End 1 3.000 2.250 1.500 0.750 0.000	Copyright Com 4BINATION 1 Shear Force (kg) 4.066 4.666 4.666 4.666	* A N A L Y puter and Des NEMBER 13 Axial Comp. (kB) 48.600 48.600 48.600 48.600	SIS	R E S U Prices Lim Noment (kl.m) 0 -3.455 -6.909 -10.364 -13.819	dx (mm) 1.2 0.6 0.0 -0.5	* JOB * DATE * SHEET 1985	dy (1)	13 Slope (deg) 89.95; 89.95; 89.95;

RESULTS FOR COMBINATION 1 MEMBER 14

	on (m)	Shear Force (kW)	Axial Comp. (kH)	Bend-Homent (kH.m)	dx (==)	dy (mm)	Slope (deg)
Jt. 4	3.000	0.000	40.500	0.000	1.0	-4.0	89.963
0.75L	2.250	0.000	40.500	0.000	0.5	-3.9	89.963
0.50L	1.500	0.000	40.500	0.000	0.0	-3.8	89.963
0.25%	0.750	0.000	40.500	0.000	-0.5	-3.7	89.963
Jt. 3	0.000	0.000	40.500	0.000	-0.9	-3.6	89.963

Maximum +ve Bending Moment 0.000 kH.m at 3.000m from joint 3

RESULTS FOR COMBINATION 1 MEMBER 15		ding Moment	0.000 kW.m.at	0.000=	from	ioint 3	
Position (m) Shear Force Axial Comp. Bend.Homent dx dy Slope From End (kH) (kM) (kM) (mm) (mm) (deg) Jt. 6 3.000 0.000 24.300 0.000 0.5 -6.6 89.979 0.751 2.250 0.000 24.300 0.000 0.2 -6.5 89.979 0.251 0.750 0.000 24.300 0.000 0.2 -6.5 89.979 0.252 0.750 0.000 24.300 0.000 0.3 -6.6 89.979 0.252 0.750 0.000 24.300 0.000 0.3 -6.4 89.979 0.252 0.750 0.000 24.300 0.000 0.3 -6.4 89.979 0.252 0.750 0.000 0.000 24.300 0.000 0.5 -6.8 89.979 0.252 0.750 0.000							
Jt. 6 3.000 0.000 24.300 0.000 0.5 -6.6 89.979 0.75L 2.250 0.000 24.300 0.000 0.2 -6.5 89.979 0.50L 1.500 0.000 24.300 0.000 -0.3 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.3 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 MAXIMUM +ve Banding Moment 0.000 kH.m at 3.000m from joint 5 RESULTS FOR COMBINATION 1 MEMBER 16 Position (m) Shear Force Akial Comp. Bend Moment dx dy Slope from End 1 (kH) (kH) (kH) (kH) (m) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.75L 2.250 0.000 16.200 0.000 0.0 -7.5 90.000 0.50L 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.00	RESULTS FOR COM	BINATION 1	NEMBER 15				
Jt. 6 3.000 0.000 24.300 0.000 0.5 -6.6 89.979 0.75L 2.250 0.000 24.300 0.000 0.2 -6.5 89.979 0.50L 1.500 0.000 24.300 0.000 -0.3 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.3 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 MAXIMUM +ve Banding Moment 0.000 kH.m at 3.000m from joint 5 RESULTS FOR COMBINATION 1 MEMBER 16 Position (m) Shear Force Akial Comp. Bend Moment dx dy Slope from End 1 (kH) (kH) (kH) (kH) (m) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.75L 2.250 0.000 16.200 0.000 0.0 -7.5 90.000 0.50L 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.0 -7.5 90.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Jt. 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.000 0.000 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.00	Position (=)	Shear Force	Avial Come Rend	Monnet	dv	du	Slone
Jt. 6 3.000 0.000 24.300 0.000 0.5 -6.6 89.979 0.75L 2.250 0.000 24.300 0.000 0.2 -6.5 89.979 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 89.979 0.50L 1.500 0.000 24.300 0.000 -0.3 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.6 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.8 89.979 Jt. 5 0.006 0.000 24.300 0.000 -0.5 -6.8 89.979 Jt. 5 0.006 0.000 124.300 0.000 -0.5 -6.8 89.979 Jt. 5 0.006 0.000 124.300 0.000 0.00 -6.5 89.979 Jt. 5 0.006 0.000 124.300 0.000 0.00 first 5 RESULTS FOR COMBINATION 1 MEMBER 16 Position (m) Shear Force Amial Comp. Bend. Homent dx dy Slope from End 1 (km) (km) (km) (km) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.50L 1.500 0.000 16.200 0.000 0.0 -7.5 90.000 0.50L 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 7 0.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 16.200 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.000 0.000 0.000 0.000 0.0 -7.4 90.000 Jt. 10 3.000 0.0000 0.0000 0.0000 0.0000 0.000 0.000 0.			(1-31)	A leld on h	(m)	(mm)	(deg)
National +ve Bending Moment	Tr 6 3 000		24 300	0.000	0.5	-6.6	00 070
National +ve Bending Moment	0.757. 2.750	0.000	24 300	0.000	0.2	-6.5	89.979
National +ve Bending Moment	0.507. 1.500	0.000	24 300	0.000	0.0	-6.5	89.979
National +ve Bending Moment	8 2ST. 0.750	0.000	24 300	0.000	-0.3	-6.4	89 979
Maximum +ve Bending Moment	Jt. 5 0.000	0.000	24.300	0.000	-0.6	-6.3	89.979
POSITION (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (km) (km) (km) (mm) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.0 -7.3 90.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00				0.000			030303
POSITION (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (km) (km) (km) (mm) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.0 -7.3 90.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00	Maximum +ve Bon	ding Moment	0.000 kH.m at	3.000m	from	joint 5	
POSITION (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (km) (km) (km) (mm) (mm) (deg) Jt. 8 3.000 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.5 90.000 0.501 1.500 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.4 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.251 0.750 0.000 16.200 0.000 0.0 -7.3 90.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.000 0.0 -7.3 90.000 0.000 0.0 -7.3 90.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00	Maximum -ve Ben	ding Noment	0.000 kW.m at	0.000m	from	joint 5	
Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope From End 1 (km) (k							
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### Computer and Design Services Limited 1985 #### A MALYSE (C)Copyright Computer and Design Services Limited 1985 ** A MALYSE (C)Copyright Computer and Design Services Limited 1985 ** A MALYSE (C)Copyright Computer and Design Services Limited 1985 ** A MALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ** AMALYSE (C)Copyright Computer and Design Servic	Position (=)	Shear Force	Axial Comp. Rend	. Moment	d=	dv	Slope
### AMALYSE (C)Copyright Computer and Design Services Limited 1985 ###################################	from End 1	/ km 1	(kill)	(kW.m)	(mm)	(mm)	(deg)
### AMALYSE (C)Copyright Computer and Design Services Limited 1985 ###################################	Jt. 8 3.000	0.000	16.200	0.000	0.0	-7.5	90.000
### AMALYSE (C)Copyright Computer and Design Services Limited 1985 ###################################	0.75% 2.250	0.000	16.200	0.000	0.0	-7.5	90.000
### AMALYSE (C)Copyright Computer and Design Services Limited 1985 ###################################	0.50L 1.500	0.000	16.200	0.000	0.0	-7.4	90.000
### AMALYSE (C)Copyright Computer and Design Services Limited 1985 ###################################	0.25L 0.750	0.000	16.200	0.000	0.0	-7.4	90.000
Maximum -ve Bending Moment	Jt. 7 0.000	0.000	16.200	0.000	0.0	-7.3	90.000
* * JOB : COLT * * * DATE: * * A M A L Y S I S R E S U L T S * SHEET: 14 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 ************************************							
* * JOB : COLT * * * DATE: * * A M A L Y S I S R E S U L T S * SHEET: 14 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 ************************************	Maximum 4ve Ben	ding Moment	0.000 kH.m at	0.000m	from	joint 7	
* * JOB : COLT * * * DATE: * * A M A L Y S I S R E S U L T S * SHEET: 14 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 ** ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 * Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kH) Jt. 10 3.000 0.000 24.300 0.000 0.5 -6.6 90.021 0.75L 2.250 0.000 24.300 0.000 0.0 -0.5 -6.6 90.021 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 0.25L 0.750 0.000 24.300 0.000 0.3 -6.4 90.021 Jt. 9 0.000 0.000 24.300 0.000 0.3 -6.4 90.021 **HAXIMUM +Ve Bending Moment 0.000 kH.m at 0.000m from joint 9 **HAXIMUM +VE BENDING NOMENT 0.000 kH.m at 3.000m from joint 9 **Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from Joint 9	Maximum -ve Ben	ding Moment	0.000 kM.m at	3.000m	from	joint 7	
* JOB: COLT * * DATE: * A M A L Y S I S R E S U L T S * SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kM) (kM) (kM, m) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.25D 0.000 24.300 0.000 -0.5 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.5 -6.4 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.6 -6.3 90.021 Maximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope							
* JOB: COLT * * DATE: * A M A L Y S I S R E S U L T S * SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kM) (kM) (kM, m) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.25D 0.000 24.300 0.000 -0.5 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.5 -6.4 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.6 -6.3 90.021 Maximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope							
* JOB: COLT * * DATE: * A M A L Y S I S R E S U L T S * SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kM) (kM) (kM, m) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.25D 0.000 24.300 0.000 -0.5 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 0.50L 1.50D 0.000 24.30D 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.5 -6.4 90.021 Jt. 9 0.000 0.000 24.30D 0.000 0.6 -6.3 90.021 Maximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope							
* JOB : COLT * * DATE: * A M A L Y S I S R E S U L T S *SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kM) (kN) (kN, m) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.6 90.021 0.75L 2.250 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.250 0.000 24.300 0.000 0.0 -6.5 90.021 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.300 0.000 0.5 -6.4 90.021 Jt. 9 0.000 0.000 24.300 0.000 0.6 -6.3 90.021 Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slope							
* A M A L Y S I S R E S U L T S * SATET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (kH) (kH) (kH) (kH) (mm) (mm) (deg) 1, 1, 10, 3,000 0.000 0.000 0.000 0.6.5 90.021 0.75L 2.250 0.000 24.300 0.000 0.00 0.2 6.6.9 0.021 0.50L 1.500 0.000 24.300 0.000 0.0 0.6.5 90.021 0.25L 0.75D 0.000 24.300 0.000 0.0 0.6.5 90.021 0.25L 0.75D 0.000 24.300 0.000 0.3 6.4 90.021 0.25L 0.75D 0.000 24.300 0.000 0.3 6.4 90.021 0.25L 0.75D 0.000 0.000 24.300 0.000 0.6.5 90.021 0.25L 0.75D 0.000 0.000 24.300 0.000 0.5 6.6.9 90.021 0.25L 0.75D 0.000 0.000 24.300 0.000 0.5 6.6.9 0.021 0.25L 0.75D 0.000 0.000 0.4 0.000 0.5 6.5 90.021 0.25L 0.75D 0.000 0.000 0.000 0.5 6.5 90.021 0.25L 0.75D 0.000 0.000 0.5 6.5 90.021 0.25L 0.75D 0.25L 0.75D 0.25L 0.75D 0.000 0.000 0.000 0.25L 0.25L 0.25L 0.25L 0							
* A M A L Y S I S R E S U L T S *SHEET: 14 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Arial Comp. Bend. Homent dx dy Slope from End 1 (kM) (kM) (kM) (mm) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.250 0.000 24.300 0.000 -0.5 -6.5 90.021 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 0.50L 0.75L 0.75D 0.000 24.300 0.000 0.0 -6.5 90.021 0.50L 1.50 0.000 24.300 0.000 0.0 -6.5 90.021 0.50L 0.75D 0.000 24.300 0.000 0.5 -6.4 90.021 Haximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend. Moment dx dv Slope	*******************************	************		**********			*******
* A M A L Y S I S R E S U L T S **SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 * Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (km) (km) (sm) (sm) (deg) 17. 10 3.000 0.000 0.000 -0.5 -6.6 90.021 0.75L 2.250 0.000 24.300 0.000 -0.2 -6.5 90.021 0.75L 2.250 0.000 24.300 0.000 0.0 -0.5 -6.6 90.021 0.25L 0.75D 0.000 24.300 0.000 0.3 -6.4 90.021 0.25L 0.75D 0.000 24.300 0.000 0.3 -6.4 90.021 0.25L 0.75D 0.000 0.000 24.300 0.000 0.6 -6.3 90.021 0.25L 0.75D 0.000 0.000 24.300 0.000 0.6 -6.3 90.021 0.25L 0.75D 0.000 0.000 0.4 .300 0.000 0.3 -6.4 90.021 0.25L 0.75D 0.000 0.000 0.4 .300 0.000 0.5 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.4 .300 0.000 0.5 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.4 .300 0.000 0.5 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.000 0.5 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.3 -6.4 90.021 0.25L 0.75D 0.000 0.000 0.3 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.000 0.3 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.3 -6.5 90.021 0.25L 0.75D 0.000 0.000 0.3 -6.5 90.021 0.25L 0.75D 0.000 0.25L 0.75D 0.000 0.25L 0.75D 0.000 0.000 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L 0.25L	•		•			* JOB : C	OLT
* A M A L Y S I S R E S U L T S *SHEET: 14 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope from End 1 (kH) (kH) (m) (m) (leg) (l	•		*			* JOB : C	OLT
** AMALYSE (C)Copyright Computer and Design Services Limited 1985 ***RESULTS FOR COMBINATION 1 MEMBER 17** Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kH) (kH) (kH) (kH) (kH) (kH) (kH) (kH)	*		*			* JOB : C	OLT
** ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 17 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kM) (kK) (kK) (m) (m) (deg) **Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 **O.75L 2.250 0.000 24.300 0.000 -0.5 -6.5 90.021 **O.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 **O.50L 0.750 0.000 24.300 0.000 0.0 -6.5 90.021 **O.50L 0.750 0.000 24.300 0.000 0.0 -6.5 90.021 **Jt. 9 0.000 0.000 24.300 0.000 0.0 -6.5 90.021 **Jt. 9 0.000 0.000 24.300 0.000 0.0 -6.5 90.021 **HAXIMUM +Ve Bending Moment 0.000 kM.m at 0.000m from joint 9 **RESULTS FOR COMBINATION 1 MEMBER 18 **Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slope	*		**************************************	***************************************		* JOB : C	OLT
RESULTS FOR COMBINATION 1 MEMBER 17 Results FOR COMBINATION 1 MEMBER 17	*		* * * * * A H A L Y S I S	RESUI	 . T S	* JOB : C	OLT
RESULTS FOR COMBINATION 1 MEMBER 17 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kH) (kN) (kN.m) (mm) (mm) (deg) Jt. 10 3.000 0.000 24.300 0.000 -0.5 -6.5 90.021 0.75L 2.250 0.000 24.300 0.000 -0.5 -6.5 90.021 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 0.50L 1.500 0.000 24.300 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.300 0.000 0.0 -6.5 90.021 Jt. 9 0.000 0.000 24.300 0.000 0.6 -6.3 90.021 Jt. 9 0.000 0.000 0.0 -6.4 90.021 Jt. 9 0.000 0.000 0.000 24.300 0.000 0.6 -6.3 90.021 Maximum +ve Bending Moment 0.000 kH.m at 0.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slope	*		* A H A L Y S I S	RESUI	L T S	* JOB : C * DATE: *SHEET:	OLT
from End 1 (kH) (kH) (kH) (kH) (kH) (kH) (km) (km) (deg) 1.1 10 3.000 0.000 24.300 0.000 0.5 6.6 90.021 0.75% 2.250 0.000 24.300 0.000 0.0.2 6.5 90.021 0.50% 1.500 0.000 0.000 0.0.2 6.5 90.021 0.25% 0.750 0.000 24.300 0.000 0.0 6.5 90.021 0.25% 0.750 0.000 24.300 0.000 0.3 6.4 90.021 0.25% 0.750 0.000 24.300 0.000 0.3 6.4 90.021 0.25% 0.750 0.000 0.000 24.300 0.000 0.6 6.3 90.021 0.25% 0.000 0.000 0.3 6.4 90.021 0.000 0.000 0.3 6.4 90.021 0.000 0.000 0.3 6.4 90.021 0.000 0.00	ANALYSE (C)C	opyright Com	* A H A L Y S I S	RESUI	T S	* JOB : C * DATE: *SHEET:	OLT 14
from End 1 (kH) (kH) (kH) (kH) (kH) (kH) (km) (km) (deg) 1.1 10 3.000 0.000 24.300 0.000 0.5 6.6 90.021 0.75% 2.250 0.000 24.300 0.000 0.0.2 6.5 90.021 0.50% 1.500 0.000 0.000 0.0.2 6.5 90.021 0.25% 0.750 0.000 24.300 0.000 0.0 6.5 90.021 0.25% 0.750 0.000 24.300 0.000 0.3 6.4 90.021 0.25% 0.750 0.000 24.300 0.000 0.3 6.4 90.021 0.25% 0.750 0.000 0.000 24.300 0.000 0.6 6.3 90.021 0.25% 0.000 0.000 0.3 6.4 90.021 0.000 0.000 0.3 6.4 90.021 0.000 0.000 0.3 6.4 90.021 0.000 0.00	ANALYSE (C)C	opyright Com	* A M A L Y S I S	RESUI	T S	* JOB : C * DATE: *SHEET:	OLT 14
0.50L 1.30D 0.000 24.30D 0.000 0.0 - 6.5 90.021 D.25L 0.75D 0.000 24.30D 0.000 0.3 - 6.4 90.021 Jt. 9 0.00D 0.00D 24.30D 0.00D 0.6 - 6.3 90.021 Maximum +ve Bending Homent 0.00D kM.m at 0.00Dm from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (MI Shear Force Axial Comp. Bend. Homent dx dv Slope	ANALYSE (C)C	opyright Company of the Company of t	* A H A L Y S I S puter and Design Se	RESUI	T S	* JOB : C * DATE: * SHEET:	14
0.50L 1.30D 0.000 24.30D 0.000 0.0 - 6.5 90.021 D.25L 0.75D 0.000 24.30D 0.000 0.3 - 6.4 90.021 Jt 9 0.00D 0.00D 24.30D 0.00D 0.6 - 6.3 90.021 Maximum +ve Bending Homent 0.00D kM.m at 0.00Dm from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (MI Shear Force Axial Comp. Bend. Homent dx dv Slope	* ANALYSE (C)C RESULTS FOR COM Position (m)	opyright Company of the Company of t	* A M A L Y S I S ** A M A L Y S I S ** MEMBER 17	RESUI	ted 1	* JOB : C * DATE: *SHEET:	14
0.50L 1.30D 0.000 24.30D 0.000 0.0 - 6.5 90.021 D.25L 0.75D 0.000 24.30D 0.000 0.3 - 6.4 90.021 Jt 9 0.00D 0.00D 24.30D 0.00D 0.6 - 6.3 90.021 Maximum +ve Bending Homent 0.00D kM.m at 0.00Dm from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (MI Shear Force Axial Comp. Bend. Homent dx dv Slope	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A M A L Y S I S ** A M A L Y S I S ** MEMBER 17	RESUI	ted 1	* JOB : C * DATE: *SHEET:	14
Haximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 Haximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A M A L Y S I S ** A M A L Y S I S ** MEMBER 17	RESUI	ted 1	* JOB : C * DATE: *SHEET:	14
Haximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 Haximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A H A L Y S I S * A H A L Y S	RESUI	dx (mm)	* JOB : C * DATE: *SHEET: 1985 dy (mm) -6.6	Slope (deg) 90.021 90.021
Haximum +ve Bending Moment 0.000 kM.m at 0.000m from joint 9 Haximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 9 RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A H A L Y S I S * A H A L Y S	RESUI	dx (mm)	* JOB : C * DATE: *SHEET: 1985 dy (mm) -6.6	Slope (deg) 90.021 90.021
RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A H A L Y S I S * A H A L Y S	RESUI	dx (mm)	* JOB : C * DATE: *SHEET: 1985 dy (mm) -6.6	Slope (deg) 90.021 90.021 90.021 90.021
RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	AMALYSE (C)C	opyright Companies BINATION 1 Shear Force	* A H A L Y S I S * A H A L Y S	RESUI	dx (mm)	* JOB : C * DATE: *SHEET: 1985 dy (mm) -6.6	Slope (deg) 90.021 90.021 90.021 90.021
RESULTS FOR COMBINATION 1 MEMBER 18 Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	*** ** ** ** ** ** ** ** ** ** ** ** **	opyright Com BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000	* A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * WENBER 17 Axial Comp. Bend (kH) 24.300 24.300 24.300 24.300 24.300 24.300 24.300	RESUI	dx (mm) -0.5 -0.2 0.0 0.3	* JOB : C * DATE: * SHEET: 1985 cly (man) -6.6 -6.5 -6.5 -6.5 -6.5	Slope (deg) 90.021 90.021 90.021 90.021
Position (m) Shear Force Axial Comp. Bend.Moment dx dv Slone	*** ** ** ** ** ** ** ** ** ** ** ** **	opyright Com BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000	* A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * A H A L Y S I S * WENBER 17 Axial Comp. Bend (kH) 24.300 24.300 24.300 24.300 24.300 24.300 24.300	RESUI	dx (mm) -0.5 -0.2 0.0 0.3	* JOB : C * DATE: * SHEET: 1985 cly (man) -6.6 -6.5 -6.5 -6.5 -6.5	Slope (deg) 90.021 90.021 90.021 90.021
Position (m) Shear Force Axial Comp. Bend. Homent dx dy Slope from End 1 (km) (km) (km) (km.m) (mm) (deg) Jt. 12 3.000 0.000 40.500 0.000 -1.0 -4.0 90.037	*** ** ** ** ** ** ** ** ** ** ** ** **	opyright Commissions of the Commissions of the Commission of the C	** * A H A L Y S I S * A H A L	RESUI rvices Lim .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.5 -0.2 0.0 0.3 0.6	* JOB : C * DATE: * SHEET: 1985 dy (mmn) -6.6 -6.5 -6.5 -6.5 -6.4 -6.3 joint 9	Slope (deg) 90.021 90.021 90.021 90.021 90.021
from End 1 (kN) (kH) (kN.m) (mm) (deg) Jt. 12 3.000 6.000 40.500 0.000 -1.0 -4.0 90.037	* AMALYSE (C)C RESULTS FOR COM Position (m) Position (m) Jt. 10 3.000 0.750 1.250 0.251 0.750 0.251 0.750 Maximum +ve Ben Maximum +ve Ben	opyright Command of the Command of t	* A M A L Y S I S ** A M	RESUI rvices Lim .Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -0.5 -0.2 0.0 0.3 0.6	* JOB : C * DATE: * SHEET: 1985 dy (mmn) -6.6 -6.5 -6.5 -6.5 -6.4 -6.3 joint 9	Slope (deg) 90.021 90.021 90.021 90.021 90.021
Jt. 12 3.000 6.000 40.500 0.000 -1.0 -4.0 90.037	* AMALYSE (CIC RESULTS FOR COM Position (m) from End 1 Jt. 10 3.000 0.75L 2.250 0.30L 1.500 0.25L 0.750 Jt. 9 0.000 Maximum +ve Ben Maximum -ve Ben RESULTS FOR COM	Opyright Company of the Company of t	* A M A L Y S I S * A M A L Y S	RESUI	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB : C- * DATE: * SHEET: 1985 dy (mm) -6.6 -6.5 -6.4 -6.3 joint 9	Slope (deg) 90.021 90.021 90.021
	** ** ** ** ** ** ** ** ** ** ** ** **	opyright Company of the Company of t	* A H A L Y S I S * A H A L Y S	: RESUI :	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB: C * DATE: * SHEET: 1985 dy (mm) -6.6 -6.5 -6.5 -6.4 -6.3 joint 9	14 Slope (deg) 90.021 90.021 90.021 90.021

0.757.	2.250	0.000	40.50	n	0.000	-0.5	-3.9	90.037
0.507.	1.500	0.000	40.50	0	0.000	0.0	-3.B	90-037
0.25L	0.750	0.000	40.50		0.000	0.5	-3.7	90.037
Jt. 11	0.000				0.000	0.9	-3.6	
Maximum	+ve Ben	ding Moment ding Moment	0.000	kW.m at	0.000m	from	joint 11	
PAXIMIR	-ve sen	ding Moment	0.000	KH.W SC	3.000m	trom	Joint 11	
RESULTS	POR COM	BINATION 1 Shear Force (km) -4.606 -4.606 -4.606	MEMBER 19					
Posit	ion (m)	Shear Force	Axial Comp	. Bend	Homent	dx	dy	Slope
fro	End 1	(kH)	(Idi	1)	(lcH ·m)	(mm)	(max)	(deg)
Jt. 14	3.000	-4.606	48.60	10	0.000	-1.2	-0.2	90.049
0.75L	2.250	-4.606	48.60	10	3.455	-0.6	-0.2	90.047
0.50%	1.500	-4.606	48.60	10	6.909	0.0	-0.2	90.043
0.25L	0.750	-4.606	48.60	10	10.364	0.5	-0.2	
Jt. 13	0.000	-4.606 -4.606	48.60	00	13.819	0.9	-0.2	90.024
Maximus	+ve Ben	ding Moment	13.819	kW.m at	0.000m	from	joint 13	
Maximum	-ve Ben	ding Moment	0.000	KW.m at	3.000m	ITOM	Joint 1.	
RESULTS	FOR COM	BINATION 1	MEMBER 20					
Posit	ion (m)	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Com	. Bend	. Moment	dx	dv	Slope
fro	m End 1	(kN)	(k3	63	(kH . m)	(mm)	(mm)	(deg)
70 3	4 243	0 000	-57.27	16	0.000	-0.9	-3.6	-45.053
0 751	2 192	0.000	-57 27	7.6	0.000	-0.4	-2.8	-45.053
0.735	3.102	0.000	67 27	76	0.000	0.3	-1.0	-45 053
0.307	2.121	0.000	-37.27	76	0.000	0.2	-1.9	45 063
0.23L	1.001	0.000	-31.21	76	0.000	0.7	-1-1	46 053
JC. 2	0.000	0.000	-31.2	70	0.000	1.2	-0.2	-43.053
Maximum	+ve Ben	ding Moment	0.000	kW.m at	4.243m	from	joint 2	
Maximus	-ve Ben	ding Moment	0.000	kN.m at	0.000m	from	joint 2	
							200 0000000000000000000000000000000000	
			*				* JOB : (
*							* DATE:	
							* DATE:	
					RESU			
* ANAL	YSE (C)C	Copyright Com	puter and De	esign Se	rvices Lim	ited	1985	
		BINATION 1	MEMBER 21					
	ion (m)	Shear Force	Axial Comp (k) -34.3(-34.3(-34.3(-34.3(-34.3(p. Bend	. Moment	dx	dy	Slope
fro	m End 1	(300)	(k)	(I)	(kH.m)	((200.)	(deg)
Jt. 5	4.243	0.000	-34.30	65	0.000	-0.6	-6.3	-45.037
0.75L	3.182	0.000	-34.30	55	0.000	-0.2	-5.8	-45.037
0.506	2.121	0.000	-34.30	65	0.000	0.2	-5.2	-45.037
0.251	1.061	0.000	-34.36	65	0.000	0.6	-4.6	-45.037
31 A	1.061	0.000	-34.3	65	0.000	1.0	-4.0	-45.037
V	0.000	0.000	-34.30		3.000	1.0	-4.0	-43.037

0.000 kN.m at 4.243m from joint 4 0.000 kW.m at 0.000m from joint 4

Maximum +ve Bending Moment Maximum -ve Bending Moment

RESULTS												
	FOR COM	BINATIO	990 I	MEMBER	22							
Down 6 to 1	on (m)	Shear	Force	Azial	Comp	. Be	nd.t	loment	dx		dy	Slope
from	End 1		(k#)		(kil	(1)	- 4	kill alli	(mm.)	(19	m)	(deg)
Te . 7	4.243		0.000		11.45	5		0.000	0.0	-7	٠á.	-45.012
751.	3.182		0.000	-	11.45	5		0.000	0.1	-7	.1	-45-012
50T.	2.121		0.000		11.45	5		0.000	0.3	-7	-0	-45.012
257.	1.061		0.000		11.45	5		0.000	0.4	-6	.8	-45.012
Positive from 15. 7 0.75L 0.50L 0.25L 7t. 6	0.000	-	0.000	-	11.45	5		0.000	0.5	-6	- 6	-45.012
Kaximum Kaximum												
Maximum	-ve ben	aing M	ment.			KN.S	at	0.000	M Iron	Joint		
RESULTS												
Positi from 7t. 10 0.75L 0.50L 0.25L Jt. 7	on (m)	Shear	Force	Axial	Comp). Be	end.7	Soment	dx		dy	Slope
from	End 1		(Jelf)		{kt	()		(kil.m)	(min.)	(20	m.)	(deg
Jt. 10	4.243		0.000		-11.45	i5		0.000	-0.5	-6	. 6	45.01
1.75L	3.182		0.000		-11.45	15		0.000	-0.4	-6	. 8	45.01
0.50L	2.121		0.000	4	-11.45	í5		0.000	~0.3	-7	.0	45.01
0.25L	1.061		0.000	4	-11.45	15		0.000	-0.1	-7	-1	45.01
Jt. 7	0.000		9.000	•	-11.4	i5		0.000	0.0	-7	- 3	45.01
taximum taximum	tve Ber	ding M	oment	9	0.000	kW.m	at	0.000	m from	joint	7	
ESULTS												
Pomiti	(m) no.	Shear	Force	Axia	l. Cong	p. 184	and.	Soment.	dx		ďу	Slope
from	End 1		(kH)		(16)	()	- 1	[政府 - 三]	(min)	- (=	m)	(deg
rt. 12	4.243		0.000		-34.36	15		0.000	-1-0	~4	.0	45.03
0.75L	3.182		0.000		-34.36	i5		0.000	-0.6	-4	. 6	45.03
3.50L	2.121		0.000		-34.36	5		0.000	-0.2	-5	. 2	45.03
0.25L	1.061		0.000		-34.36	iS.		0.000	0.2	-5	.8	45.03
Positi from 7t. 12 0.75L 0.50L 0.25L 7t. 9	0.000		0.000		-34.36	15		0.000	0.6	-6	. 3	45.03
laximum faximum												
	-we Sec	ding Mc	ment									
MAXIMUM						RH.B	ac.		m from	joint	9	
*#X1MOB						KM.m	ac	7.443	m from	joint	9	
						kW.m	ac		m from	joint	9	
				*						* J08	. (COLT
										* JOS	: (COLT
******				· A II	AL	YSI	· · · · · · · · · · · · · · · · · · ·	R E S U	LTS	* JOS * DATE * SHEET	: (COLT
				· A II	AL	YSI	S	R E S U	LTS	* JOS * DATE *SHEET	: (COLT
ANALY	SE (C)C	opyrigh	nt Cong	· A I	A L	YSI	Serv	R E S U	L T S	* JOS * DATE *SHEET	: (COLT
ANALY	SE (C)C	opyrigh BINATIO	at Comp	A II	A L	Y S 1	Serv	R E S U	LTS	* JOB * DATE * SHEET	: (COLT 16
ANALY	SE (C)C	opyrigh BINATIO	at Comp	A II	A L	Y S 1	Serv	R E S U	LTS	* JOB * DATE * SHEET	: (COLT 16
ARALY: ARALY: Positi: From fr. 14	SE (C)C	opyrigh BINATIO	at Comp	A II	A L	Y S 1	Serv	R E S U	LTS	* JOB * DATE * SHEET	: (COLT 16

0.50L	2.121	0.00	- 00	-57.276		0.000	-0.2	-1.9	45.053
	1.061	0.00	90	-57.276		0.000	0.4	-2.8	45.053
t. 11	0.000	0.00	00	-57.276		0.000	0.9	-3.6	45.053
Maximum	+ve Bott	ding Moment	Fee -	0.000 kM	m at	0.000m	from	joint 11	
Auximum	-ve Ben	ding Moment	t.	9.000 km	.m at	4.243m	from	joint 11	
RESULTS	FOR COM	BINATION .	I MEMBE	DR 26					
See 40	dan tak	Shear Por-							
POSIC	ton (m)	Shear For	te Akis	II COMP.	secd.	NOMESC.	GX.	dy (===}	STobe
	m 2000 1	(10	10)	(1011)		(KH-H)	(100)	(==)	(aeg)
0 307	4.000	(ki -2.3 -2.3 -2.3 -2.3	0.3	45.600		13.819	-0.9	-0.2	69.976
0.734	4.500	-2.3	03	48.600	-	10.364	-1.2	-0.1	89.997
0.502	3.000	-2.3 -2.3 -2.3	03	48.500		-6.909	-1.1	-0.1	90.012
J-23L	1.500	-2.3	0.3	48.600		-3.455	-0.6	0.0	90.022
JE. 15	0.000	-2.3	03	48.600		0.000	0.0	0.0	90.025
Mariana	two Ber	ding Momen		0 000 PH		0.000	-	doing 15	
Haximum	-ve Ber	ding Homen	-1	3.819 by		6 000=	from	ioint 15	
						0.000		JOZNE 13	
Posit:	ion (m)	Shear For	ce Axia	1 Comp.	Bend.	Homent.	dx	dy	Slope
rros	m End 1	(k 2.3 2.3 2.3 2.3	W)	(kB)		(kH-m)	()	(===)	(deg
JE. 13	6.000	2.3	03	48.600		13-819	0.9	-0.2	90.02
0.75L	4.500	2.3	03	48.600		10.364	1.2	-0.1	90.00
0.505	3.000	2.3	03	48.600		6.909	1.1	-0.1	89.98
0.25L	1.500	2.3	03	48.600		3.455	0.6	0.0	89.97
JE. 16	0.000	2.3	03	48.500		0.000	0.0	0.0	89.97
May i mum	Aug Ben	ding Momen		2 919 Lu		6 000-	4	4-1 16	
An - 4		warming a commontal		3.013 M		0.000E	7 E OM		
		ding Momen				0.000-	£	inian 16	
76 X 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	-ve Ben	ding Homen	L 200620	0.000 km	-m at	0.000m	from	iniar 16	
*******		ding Homen BINATION			.m at	0.000m	from	iniar 16	
RESULTS	FOR CON	BINATION	2 KENBE	R 1			****	joint 16	
RESULTS Posit:	FOR COM	BINATION .	? HEMB E	R 1	Bend.	Homent.	dx	joint 16	Slope
RESULTS Posit:	FOR COM	BINATION Shear For	? HEMB E Ce Axia	iR 1	Bend.	Homent.	dx	joint 16	Slope
Posit:	FOR COM	Shear For (k)	P AKIA	R 1 1 Comp. (kil) 77.602	Bend.	Moment (kW.m) 0.000	dx (ma) 72.3	joint 16 dy (mm) -4.4	Slope (deg)
Posit:	FOR COM	Shear For (k)	P AKIA	IR 1 (kW) 77.602 77.602	Bend.	Moment. (kH.m) 0.000 0.000	dx (mn) 72.3 72.5	joint 16 dy (mm) -4.4 -3.3	Slope (deg) -0.081
Posit: from Jt. 4 0.75% 0.50L	FOR COM ion (m) m End 1 3.000 2.250 1.500	Shear For (ki 0.00	P MEMBE Ce Axia N) 00 00	IR 1 1 Comp. (kW) 77.602 77.602 77.602	Bend.	Homent (kH.m) 0.000 0.000	dx (mm) 72.3 72.5	dy (mm) -4.4 -3.3	Slope (deg) -0.081
Positi from t. 4 0.75& 0.50L	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750	Shear For (ki 0.0 0.0 0.0 0.0	PENBE Ce Axia N) 00 00 00	IR 1 (kW) 77.602 77.602 77.602 77.602	Bend.	Homent (kH.m) 0.000 0.000 0.000 0.000	dx (mm) 72.3 72.5 72.6 72.8	dy (mm) -4.4 -3.3 -2.3	Slope (deg) -0.081
Positi from t. 4 0.75& 0.50L	FOR COM ion (m) m End 1 3.000 2.250 1.500	Shear For (ki 0.0 0.0 0.0 0.0	P MEMBE Ce Axia N) 00 00	IR 1 (kW) 77.602 77.602 77.602 77.602	Bend.	Homent (kH.m) 0.000 0.000	dx (mn) 72.3 72.5	dy (mm) -4.4 -3.3 -2.3	Slope (deg) -0.08; -0.08; -0.08;
Posit: from Jt. 4 0.75L 0.50L 0.25L Jt. 2	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear For (k) 0.00 0.00 0.00 0.00 0.00 0.00	2 MEMBE Ce Axia N) 00 00 00 00 00 00	TR 1 (kW) 77.602 77.602 77.602 77.602 77.602	Bend.	Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) 72.3 72.5 72.6 72.8 72.9	dy (mm) -4.4 -3.3 -2.3 -1.2	Slope (deg) -0.08; -0.08; -0.08;
Posit: from Jt. 4 0.75L 0.50L 0.25L Jt. 2	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear For (ki 0.0 0.0 0.0 0.0	2 MEMBE Ce Axia N) 00 00 00 00 00 00	TR 1 (kW) 77.602 77.602 77.602 77.602 77.602	Bend.	Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) 72.3 72.5 72.6 72.8 72.9	dy (mm) -4.4 -3.3 -2.3 -1.2	Slope (deg) -0.081 -0.081

· DATE:

. * A N A L Y S T S R F S U L T S *SHEET: 18 * AMALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 2 MEMBER 6 end. Moment. dx dy Slope (kt. m.) imm! (mm) (deg) 0.000 70.4 -0.3 0.559 0.000 70.4 -1.1 0.559 0.000 70.4 -2.7 0.659 0.000 70.4 -2.7 0.659 0.000 70.4 -3.4 0.539 Position (m) Shear Force Axial Comp. Bend.Moment from End 1 Jt. 14 3.000 0.75L 2.250 0.50L 1.500 (kN) 0.000 0.000 (kH) -3.398 -3.398 0.000 -3.398 0.000 0.000 -3.398 0.000 0.000 -3.398 0.000 0.000 -3.398 0.000 0.750 D. 251. Jt. 12 0.000 Maximum +ve Bending Moment 0.000 km.m at 0.000m from joint 12 Meximum -ve Bending Moment 0.000 km.m at 0.000m from joint 12 RESULTS FOR COMBINATION 2 MEMBER 7
 Position (m)
 Shear Force from End I
 Axial Comp.
 Bend. Howent (km)
 dx
 dy
 Slope from End I

 1.0
 0.000
 -65.528
 0.000
 69.5
 -4.2
 -0.71

 7.5L
 2.250
 0.000
 -45.528
 0.000
 69.4
 -3.1
 -0.078

 50L
 1.50
 0.000
 -45.528
 0.000
 69.2
 -2.1
 -0.078

 2.25
 0.750
 0.000
 -45.528
 0.000
 69.2
 -1.1
 -0.078

 2.1
 0.000
 -65.528
 0.000
 69.2
 -0.078
 -0.078

 2.1
 0.000
 -65.528
 0.000
 69.2
 -0.078
 -0.078
 Jt. 3 0.751 0.50L 1.500 0.25L 0.750 Jt. 1 0.000 Maximum +ve Bending Moment 0.000 kH.m at 0.000m from joint 1 Maximum -ve Bending Moment 0.000 kH.m at 0.000m from joint 1 RESULTS FOR COMBINATION 2 MEMBER 8 | Position (m) | Shear Force | Axial Comp. | Bend | Homent | dx | dy | Slope | Stope | Maximum +ve Bending Moment 0.000 kH.m at 0.000m from joint 3 Maximum -ve Bending Moment 0.000 kH.m at 3.000m from joint 3 RESULTS FOR COMBINATION 2 MEMBER 9 Fomition (m) Shear Force Axial Comp. Bend.Noment dx dy Slope from End 1 (kN) (kN) (kN.m) (mm) (dng) (dng) .7 3.00 0.00 6-59.828 0.000 70.9 -7.1 -0.00 .705 .750 2.250 0.000 -69.828 0.000 70.7 -7.0 -0.009 .500 .750 0.000 -69.828 0.000 70.6 -6.9 -0.009 .255 0.750 0.000 -69.828 0.000 70.6 -6.9 -0.009 .255 0.750 0.000 -69.828 0.000 70.2 -6.6 -0.009 .5 0.5 0.000 .705 0.000 0.000 .705 0.000 Jt. 7 0.75L 0.75L 0.50L 0.25L

Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 5 Maximum -ve Bending Moment 0.000 kN.m at 0.000m from joint 5

*							
			*			• JOB : CC	LT
*			*			* DATE:	
• •			:	,		* DATE:	
•			* A H A L Y	SIS RES	LTS	*SHEET:	19
- ANALI	BE (C)C	opyright Com	outer and Desi	gn Services L	LEITEG)	342	
		BINATION 2					
Positi	on (m)	Shear Force	Axial Comp.	Bend . Noment	dx	dy	Slope
	End 1	(3cH)	(kH)			dy (am) ~5.6	(deg)
Jt. 9	3.000	0.000		0.000	71.2	-5.6	0.029
	2.250				71.1		0.029
	1.500	0.000	-29.328			-0.4	0.029
	0.750	0.000	-29.328 -29.328	0.000	71.0		
Jt. 7							0.029
Maximum	+ve Ben	ding Noment	0.000 ks	I.m at 6.00 I.m at 3.00	Om from	joint 7	
	-40 961	ornd womant				Jozne .	
RESULTS	FOR COM	BINATION 2	MEMBER 11				
				Bend. Homent	dπ	dy	Slope
	m End I			(kH.m)	(==)	(mm) -2.8 -3.5	(deg)
Jt. 11	3.000				71.1	-2.0	0.053
	2.250	0.000	15.222		71.1	-3.5	0.053
0.50L	1.500	0.000	15.222		71.1	-4.2	
0.25L	0.750	0.000	15.222	0.000	71.2 71.2	-4.9	
Jt. 9	0.000	0.000	15.222	0.000	71.2	-5.6	0.053
Maximum	+ve Ber	ding Homent	0.000 ki	6.m at 3.00 f.m at 0.00	Om from	joint 9	
MAXIMUM	-As Ret	iding Moment	0.000 R	.m at 0.00	OM XEOM	Joruc a	
results	FOR CO	dBINATION 2	MEMBER 12				
Posit	ion (m)	Shear Force	Axial Comp.		dx	dy	Slope
Posit:	ion (m) m End l	Shear Force	Axial Comp.	(kit.m)	(FF)	(200)	(deg)
Posit: from Jt. 13	ion (m) m End 1 3.000	Shear Force (kH) 0.000	Axial Comp. (kN) 75.972	(kW.m) 0.000	(FF)	(200)	(deg)
Posit: from Jt. 13 0.75L	ion (m) m End 1 3.000 2.250	Shear Force (kH) 0.000	Axial Comp. (kil) 75.972 75.972	(kW.m) 0.000 0.000	70.3 70.5	-0.2 -0.9	(deg) 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L	ion (m) m End 1 3.000 2.250 1.500	Shear Force (kH) 0.000 0.000	Axial Comp. (kil) 75.972 75.972	(kW.m) 0.000 0.000	70.3 70.5 70.7	(am) -0.2 -0.9 -1.5	(deg) 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L	ion (m) m End 1 3.000 2.250 1.500 0.750	Shear Porce (kH) 0.000 0.000 0.000	Axial Comp. (kH) 75.972 75.972 75.972 75.972	(kW.m) 0.000 0.000 0.000 0.000	(mm) 70.3 70.5 70.7 70.9	(mm) -0.2 -0.9 -1.5 -2.2	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L	ion (m) m End 1 3.000 2.250 1.500 0.750	Shear Porce (kH) 0.000 0.000 0.000	Axial Comp. (kH) 75.972 75.972 75.972 75.972	(kW.m) 0.000 0.000 0.000 0.000	70.3 70.5 70.7	(mm) -0.2 -0.9 -1.5 -2.2	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kH) 0.000 0.000 0.000 0.000	Axial Comp. (kill) 75.972 75.972 75.972 75.972 75.972	(kW.m) 0.000 0.000 0.000 0.000	70.3 70.5 70.7 70.9 71.1	(mm) -0.2 -0.9 -1.5 -2.2 -2.8	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11 Maximum Haximum	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber	Shear Force (AH) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment	Axial Comp. (kH) 75.972 75.972 75.972 75.972 75.972 0.000 kl	(kW.m) 0.000 0.000 0.000 0.000	(sm) 70.3 70.5 70.7 70.9 71.1 Om from	(am) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11 Maximum Maximum	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber	Shear Force (kH) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment	Axial Comp. (kH) 75.972 75.972 75.972 75.972 75.972 0.000 kl	(kW.m) 0.000 0.000 0.000 0.000 0.000 0.000	(sm) 70.3 70.5 70.7 70.9 71.1 Om from	(am) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11 Maximum Meximum RESULTS	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COR	Shear Force (NH) 0.000 0.000 0.000 0.000 0.000 ding Moment MBINATION 2	Axial Comp. (kii) 75.972 75.972 75.972 75.972 75.972 0.000 ki 0.000 ki	(kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 8.m at 0.00	(mm) 70.3 70.5 70.7 70.9 71.1 Om from	(m) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11	(deg) 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11 Maximum Meximum RESULTS	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COM ion (m) m End 1	Shear Force (kH) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment ding Homent	Axial Comp. (kii) 75.972 75.972 75.972 75.972 0.000 ki 0.000 kl HENDER 13 Axial Comp.	(kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 F.m at 0.00 Bend. Homent	(mm) 70.3 70.5 70.7 70.9 71.1 Om from	(m) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11	(deg) 0.049 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L 0.25L Jt. 11 Maximum Maximum Posit: from Jt. 2	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR COR	Shear Force (ARI) 0.000 0.000 0.000 0.000 0.000 0.000 d.000 mding Moment HBINATION 2 Shear Force (ARI)	Axial Comp. (kii) 75.972 75.972 75.972 75.972 75.972 0.000 ki 0.000 ki HENNER 13 Axial Comp. (kii) 28.350	(kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 6.m at 0.00 N.m at 0.00 Bend.Homent (kH.m) 0.000	(mm) 70.3 70.5 70.7 70.9 71.1 Om from	(m) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11	(deg) 0.049 0.049 0.049 0.049 0.049
Posit: from Jt. 13 0.75L 0.50L Jt. 11 Maximum Maximum Posit: from Jt. 2 0.75L	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR CON ion (m) m End 1 3.000 2.250	Shear Force (kH) 0.000 0.000 0.000 0.000 0.000 diding Homent HBINATION 2 Shear Force (kH) -57.352 -52.852	Axial Comp. (kil) 75.972 75.972 75.972 75.972 75.972 0.000 kil 0.000 kil NEMBER 13 Axial Comp. (kil) 28.350 28.350	(kH.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 8.m at 0.00 8.m at 0.00 Bend.Homent (kH.m) 0.000 41.327	(mm) 70.3 70.5 70.7 70.9 71.1 Om from Om from (am) 72.9 73.1	(mm) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11 joint 11 -0.1 -0.1	(deg) 0.049 0.049 0.049 0.049 0.049 5lope (deg) 90.019
Posit: from Jt. 13 0.75L 0.25L Jt. 11 Maximum Maximum Posit: from Jt. 2 0.75L 0.50L	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR CDR ion (m) m End 1 3.000 2.250 1.500	Shear Force (km) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Shear Force (km) -57.32 -52.852 -48.352	Axial Comp. (kil) 75.972 75.972 75.972 75.972 75.972 0.000 kil 0.000 kil 0.0	(kEL.m) 0.000 0.000 0.000 0.000 0.000 0.000 6.m at 0.00 F.m at 0.00 (kE.m) 0.000 41.327 79.278	(mm) 70.3 70.5 70.7 70.9 71.1 Om from Om from (am) 72.9 73.1	(mm) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11 joint 11 -0.1 -0.1	(deg) 0.049 0.049 0.049 0.049 0.049 \$Lope (deg) 90.019 90.001
Posit: from Jt. 13 0.75L 0.50L Jt. 11 Maximum Maximum Posit: from Jt. 2 0.75L	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ber -ve Ber FOR CDR ion (m) m End 1 3.000 2.250 1.500	Shear Force (kH) 0.000 0.000 0.000 0.000 0.000 diding Homent HBINATION 2 Shear Force (kH) -57.352 -52.852	Axial Comp. (kil) 75.972 75.972 75.972 75.972 75.972 0.000 ki MERMEER 13 Axial Comp. (kil) 28.350 28.350 28.350 28.350	(kH.m) 0.000	(mm) 70.3 70.5 70.7 70.9 71.1 Om from Om from (am) 72.9 73.1	(mm) -0.2 -0.9 -1.5 -2.2 -2.8 joint 11 joint 11 -0.1 -0.1 -0.1	(deg) 0.049 0.049 0.049 0.049

eent.re	FOR COM	BIHATI	ON 2	MEMBER	2							
Positi	on (m)	Shear	Force	Axial	Comp	. Be	end.I	ioment	dx		dy	Slope
from	a End 1		(lest)		()(8)	()	-	kN.m)	(===)	(=	=)	(deg)
t. 6	3.000		0.000		81.65	2		0.000	71.7	-6	• 7	-0.044
.75L	2.250		0.000		81.65	2		0.000	71.9	-6	-1	-0.044
.50L	1.500		0.000		81.65	2		0.000	72.0	-5	-5	-0.044
1.25L	0.750		0.000		81.65	2		0.000	72.2	-4	-9	-0.044
t. 4	0.000		0.000		81.65	.2		foment kN.m; 0.000 0.000 0.000 0.000 0.000	72.3	-4	-4	-0.044
Laximum	+ve Ben	ding M	loment	0	.000	kN .m	at	0.000m	from	joint	4	
Maximum	-ve Ben	ding M	oment	0	.000	kN-m	at	0.000m 0.000m	from	joint	4	
	FOR COM											
Positi	ion (m)	Shear	Force	Axial	Comp	ь. В	and.	(kN.m) 0.000 0.000 0.000 0.000 0.000	dx		dy	Slape
7.24	a End 1		(kH)		(kB	1)		(kN.m)	(==)	(m	m)	(deg)
t. 8	3.000		0.000		69.50	12		0.000	71.2	-7	. 3	-0.012
.75L	2.250		0.000		69.50	12		0.000	71.3	-7	- 1	-0.012
).50L	1.500		0.000		69.50	12		0.000	71.5	-7	.0	-0.012
D.25L	0.750		0.000		69.50	12		0.000	71.6	-6	. 8	-0.012
Jt. 6	0.000		0.000		69.50	12		0.000	71.7	-6	. 7	-0.012
	FOR CO							0.000m 0.000m				
Posit	ion (m)	Shear	Force	Axial	Come). B	end.	Homent.	dx		dv	Slope
from	a End 1		CRNO		(k)	41)		(kN.m)	(==)	(m	m)	(deg)
Jt. 10	3.000		0.000		69.50	12		0.000	70 7			0.024
						4.00				-0	. 1	
0.75L	2.250		0.000		69.50	12		0.000	70.8	-6	-4	0.024
0.75L 0.50L	2.250 1.500		0.000		69.50	12		0.000	70.8	-6 -6	-4 -7	0.024
0.75L 0.50L 0.25L	2.250 1.500 0.750		0.000		69.50 69.50)2)2)2		0.000	70.8 70.9 71.1	-6 -6 -7	.4	0.024 0.024 0.024
0.75L 0.50L 0.25L Jt. 8	2.250 1.500 0.750 0.000		0.000		69.50 69.50 69.50	12		0.000 0.000 0.000	70.8 70.9 71.1 71.2	-6 -6 -7 -7	.7	0.024 0.024 0.024 0.024
								Moment (kN.m) 0.000 0.000 0.000 0.000 0.000				
leximum leximum	+ve Ber -ve Ber	nding P	ioment ioment	0	.000	kH.m kH.m	at at	0.000 0.000 0.000 0.000 0.000m	from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Haximum Haximum RESULTS	+ve Ber -ve Ber	nding P nding P	toment foment	MEMBER	.000	kN.m kB.m	at at	0.000m 0.000m	from from	joint joint	8	
Heximum Heximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 10	FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000	eding P nding P (BIMAT)	OM 2 Porce (kN) 0.000 0.000 0.000 0.000	MEMBER Axial	.000 .000 .000 .000 (ks 41.15 41.15 41.15 41.15	kH.m kH.m p. Be \$52 52 52 52 52	at at end.	0.000m 0.000m Moment (kN.m) 0.000 0.000 0.000 0.000	dx (==) 70.4 70.5 70.6 70.7	joint joint 	8 8 dy m) .4 .1 .7 .4	Slope (deg) 0.050 0.050 0.050 0.050
Heximum Heximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 10	FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000	eding P nding P (BIMAT)	OM 2 Porce (kN) 0.000 0.000 0.000 0.000	MEMBER Axial	.000 .000 .000 .000 (ks 41.15 41.15 41.15 41.15	kH.m kH.m p. Be \$52 52 52 52 52	at at end.	0.000m 0.000m	dx (==) 70.4 70.5 70.6 70.7	joint joint 	8 8 dy m) .4 .1 .7 .4	Slope (deg) 0.05(0.05(0.05(0.05(

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RESULTS FOR CO	ABINATION 2	MEMBER 14				
Position (m)	Shear Force	Axial Comp.	Bend . Noment	ďх	dv	Slope
from End 1 Jt. 4 3.000 0.75L 2.250	(kN)	(kN)	Bend-Moment (kN.m) 0.000 0.000	(==)	(1980)	(deg)
Jt. 4 3.000	0.000	20.250	0.000	72.3	-4.4	89.946
0.751. 2.250	0.000	20.250	0.000	71.6	-4.3	89.946
0.50T. 1.500	0.000	20.250	0.000	70.9	-4.3	89.946
0.50L 1.500 0.25L 0.750	0.000	20.250	0.000	70.2	-4.2	
Jt. 3 0.000	0.000	20.250	0.000 0.000 0.000	69.5	-4.2	
Marinum Aug Bar						
Maximum -ve Be	nding Moment	0.000 kM	.m at 3.000m .m at 0.000m	from	joint 3	
RESULTS FOR CO	MBINATION 2	MEMBER 15				
Position (m)		Axial Comp.	Bend. Howent	dx	dy	Slope
from End 1	(300)	(kil)	(kH.m)	(mm)	(mm)	(deg
from End 1 Jt. 6 3.000 0.75L 2.250 0.50L 1.500	(kH) 0.000 0.000 0.000	4.050	0.000	71.7	-6.7 -6.7	89.97
0.75L 2.250	0.000	4.050	0.000	71.3	-6.7	89.97
0.50L 1.500	0.000	4.050	0.000	71.0		89.97
0.25L 0.750	0.000	4.050	0.000	70.6	-6.6	89.97
Jt. 5 0.000	0.000	4-050	(kM.m) 0.000 0.000 0.000 0.000 0.000	70.2	-6.6	89.97
Maximum +ve Be	nding Nomest				toint 5	
Maximum -ve Be	nding Moment	0.000 kM	.m at 0.000m	from	joint 5	
RESULTS FOR CO						
Position (m)	Sheer Porce	Awiel Comm	Bend. Homent	4-	du	Slope
from End 1	(1/11)	(1/4)	(kg . m)	(100)	()	(deg
3+. 8 3.000	0.000	16.200	0.000	71.2	-7.3	89.99
0 751. 2 250	0.000	16 200	8end.Homent (kH.m) 0.000 0.000 0.000 0.000	71 1	-7.3	89.99
0 501. 1 500	0.000	16 200	0.000	71 1	-7-2	89.99
0.257. 0.760	0.000	16.200	0.000	71.0	-7.2	85.99
T+ 7 0 000	0.000	16 200	0.000	70 0	-7.2 -7.1	89.99
						07.77
Maximum +ve Be	nding Moment	0.000 km	.m at 3.000m .m at 0.000m	from	joint 7	
Maximum -ve Be	nging Moment	0.000 kW	.m at 0.000m	From	joint 7	
RESULTS FOR CO	MBINATION 2	MEMBER 17				
Position (m)	Shear Force	Axial Comp.	Bend. Howent	dx	dy	Slop

from Jt. 10 0.75L 0.50L 0.25L Jt. 9	a End 1 3.000 2.250 1.500 0.750 0.000	(km) 0.000 0.000 0.000 0.000	(kn) 44.550 44.550 44.550 44.550	(kN.m) 0.000 0.000 0.000 0.000	(mm) 70.7 70.8 70.9 71.1 71.2	(mm) -6.1 -5.9 -5.8 -5.7 -5.6	90.011
	+ve Bending -ve Bending		0.000 kM.m at 0.000 kM.m at			joint 9 joint 9	

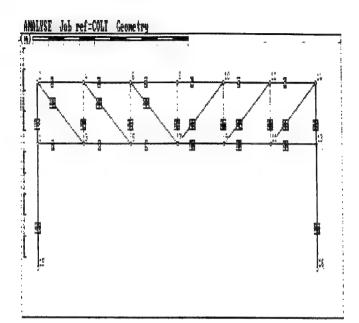
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RESULTS FOR COM					***********	
Position (m)	Shear Force	Axial Comp.	Bend.Homent (kW.m)	dx	dy Slope	
from End 1 Jt. 12 3.000	(kH)	(kH)	(kH.m) 0.000	(mm)	(mm) (deg)	
Jt. 12 3.000	0.000	60.750	0.000	70.4		
0.75L 2.250 0.50L 1.500	0.000	60.750 60.750	0.000	70.5	-3.3 90.013 -3.1 90.013	
0.50L 1.500	0.000	60.750	0.000	70.7	-3.1 90.013	
0.25% 0.750	0.000	60.750	0.000	70.9	-3.0 90.013 -2.8 90.013	
Jt. 11 0.000	0.000	60.750	0.000	/1.1	-2.8 90.013	
Maximum +ve Ber	nding Homent	0.000 kM	.m at 3.000m	from je	oint 11	
Maximum -ve Ber	nding Moment	0.000 kH	.m at 3.000m	from je	oint 11	
RESULTS FOR CO						
Position (=)	Shear Force	Axial Comp.	Bend.Homent	clas		
from End 1	(3cH)	(kH)	(kM.m) 0.000 47.267	(mm)	(mm) (deg)	
Jt. 14 3.000	-64.148	68.850	0.000	70.4	-0.3 90.107	
0.75L 2.250	-61.898	68.850	47.267	71.7	-0.3 90.086	
0.50L 1.500 0.25L 0.750	-59.648 -57.398	68.850 68.850	92.847 136.739	72.5	-0.3 90.024	
Jt. 13 0.000	-57.398 -55.148	68.850	178.943	70.3		
JE. 13 D.000	-33.148	88.830	176.943	70.3	-0.2 09.703	
Maximum +ve Ber Maximum -ve Ber	nding Moment nding Moment	178.943 kH 0.000 kH	.m at 0.000m	from j	oint 13 oint 13	
RESULTS FOR CO						
Position (m)	Shear Force	Axial Comp.	Bend . Noment	dx	dy Slope	
from End 1	(3(3)	(kil)	.(kH.m)	(man)	(mm) (deg)	
Jt. 3 4.243	0.000	-28.638	0.000	69.5	-4.2 -45.071	
0.75L 3.182 0.50L 2.121	0.000	-28.638		70.4	-3.2 -45.071	
0.50L 2.121	0.000		0.000	71.2	-2.2 -45.071	
0.25L 1.061 Jt. 2 0.000	0.000			72.1	-1.1 -45.071	
Jt. 2 0.000	0.000	-28.638	0.000	72.9	-0.1 -45.071	

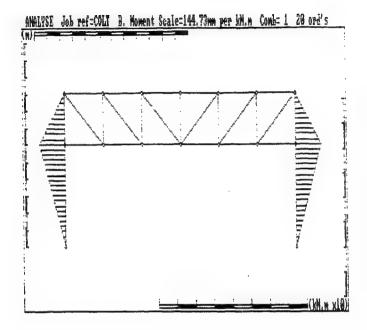
Position from E Jt. 5 4 0.75L 3 0.50L 2 0.25L 1 Jt. 4 0	R COMBINA	TION 2 I	MEMBER 2	1		Homent			
	(m) Sheard 1 .243 .182 .121 .061	ar Porce (kH) 0.000 0.000	Axial Co	mp. I kN)	Bend.	Homent.	dx	d	w Slone
	nd 1 .243 .182 .121	0.000 0.000	-5 -	kH)		/hm mi			
	.243 .182 .121	0.000	-5 -	728			(mm)	(1000	i) (deg)
	.182 .121 .061	0.000	-5.			0.000	70.2	-6.	6 -45.042
	.121 .061		-3.	728		0.000	70.7	-6.	1 -45.042
	-061	0.000	-5.	728		0.000	71.3	-5.	5 -45.042
		0.000	~5.	728		0.000	71.8	-4.	9 -45.042
	-000	0.000	-5.	728		0.000	72.3	-4.	4 -45.042
laximum +v leximum -v	e Bending e Bending	Moment Moment	0.00	0 kH.:	m at m at	4.243m 0.000m	from from	joint joint	4
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Position	(m) She	er Force	Avial C		Bend	Monant	4=		tu slan
from E	nd 1	(kH)		lkB(1)		(kH.m)	(200)		i) (deg
Jt. 7 4	-243	0.000	17	183		0.000	70.9	-7.	1 -45.01
0.75L 3	.182	0.000	17	183		0.000	71.1	-7	0 -45.01
0.50L 2	.121	0.000	17	183		0.000	71.3	-6	9 -45.01
0.25L 1	.061	0.000	17	183		0.000	71.5	-6	8 -45.01
Jt. 6 0	.000	0.000	17	183		.Homent (kH.m) 0.000 0.000 0.000 0.000	71.7	-6	7 -45.01
Gaximum +v Gaximum -v	e Bending e Bending	Moment. Moment	0.0	00 km.	m at	4.243m 0.000m	from	joint joint	6
RESULTS FO	R COMBINA	TION 2	MEMBER :	23					
Position	(m) She	ar Force	Avial C	-	Bend	Moment	du		de Glon
	tod 1	(kW)		100		(in the second	4-1		a stop
from N		0.000	40	093		0.000	70.7	- 4	.1 45.01
from E	.243		-40	093		0.000	70.7	-4	3 45.01
from E	.243	0.000				0.000			** 43.01
from E Jt. 10 4 0.75L 3	.243 .182	0.000	-40	093		0 000	70 9	-6	6 45 01
from E 1t. 10 4 0.75L 3 0.50L 2	.243 .182 -121	0.000	-40	093		0.000	70.8	-6	6 45.01
from E ft. 10 4 0.75L 3 0.50L 2 0.25L 1	.243 .182 -121 .061	0.000 0.000 0.000	-40 -40 -40	.093 .093 .093		0.000 0.000 0.000	70.8 70.9 70.9	-6 -6 -7	.6 45.01 .9 45.01 .1 45.01
Gaximum +v Gaximum −v	e Bending e Bending	Homent Homent	0.0	00 kM.	m at	0.000m 4.243m	from	joint	7
Maximum +v Maximum −v	e Bending e Bending	Homent Homent	0.0	00 km.	m at	0.000 0.000 0.000 0.000m 4.243m	from	joint	7
RESULTS FO	e Bending e Bending R COMBINA	Homent Homent	0.00 0.00 MEMBER	00 kM. 00 kM. 24	m at m at	0.000m 4.243m	from	joint joint	7 7

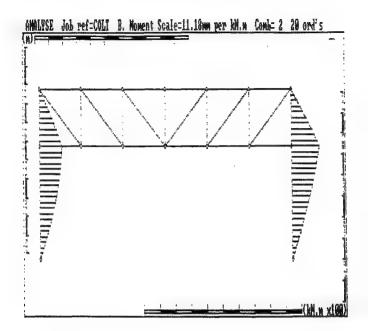
Jt. 12	4.243	0.000	-63.003	0.000	70.4	-3.4	45-029
0.75L	3.182	0.000	-63.003	0.000	70.6	-4.0	45.029
D.50%	2.121	0.000	-63.003	0.000	70.8	-4.3	45.029
0.25%	1.061	0.000	-63.003	0.000	71.0	-3.1	45.029
				0.000 0.000 0.000 0.000			
taximum taximum	tve Ben	ding Moment	0.000 km.	m at 0.000m m at 4.243m	from	joint 9	
Sector Sec	BOB COM	BINATION 2	MEMBER 25			J-2110	
				Bond Monant	4-	du	Flore
from	End 1	(kH)	(kii)	Bend . Noment (kN . m) 6 . 000 0 . 000 0 . 000 0 . 000	(mm)	(mm)	(deq)
Jt. 14	4.243	0.000	-85.913	0.000	70.4	-0.3	45.030
0.75L	3.182	0.000	-85.913	0.000	70.6	-1.0	45.030
0.50L	2.121	0.000	-85.913	0.000	70.7	-1.6	45.030
0.251.	1.061	0.000	-85.913	0.000	70.9	-2.2	45.030
Jt. 11	0.000	0.000	-85.913	0.000	71.1	-2.8	45.030
Haxisum Kazisum	-ve Ben	ding Moment	0.000 kM. 0.000 kM.	m at 0.000m m at 4.243m	from	joint 11	
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ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
ANAL	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
* ANAL!	YSE (C)C	opyright Comp	* A N A L Y S auter and Desig	n Services Lim	L T S	*SHEET:	23
Posit: from Jt. 1 0.75L 0.50L 0.25L Jt. 15	FOR COM ion (m) m End l 6.000 4.500 3.000 1.500 0.000	BIMATION 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176	A H A L Y S WEET and Design MEMBER 26 Axial Comp. (kH) 28.350 28.350 28.350	Earl Noment (kW.m) 145.057 129.043 99.528 56.514 0.000	UR (100) 69.0 59.1 43.3 22.9 0.0	dy [mm] -0.1 -0.1 0.0 0.0	23 Slope (log) 89.747 89.502 89.298 89.158 89.106
Posit: froit: 10.75L 0.50L 0.25L 0.25L	FOR COM ion (m) m End l 6.000 4.500 3.000 1.500 0.000	BIMATION 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176	A H A L Y S WEET and Design MEMBER 26 Axial Comp. (kH) 28.350 28.350 28.350	Earl Noment (kW.m) 145.057 129.043 99.528 56.514 0.000	UR (100) 69.0 59.1 43.3 22.9 0.0	dy [mm] -0.1 -0.1 0.0 0.0	23 Slope (log) 89.747 89.502 89.298 89.158 89.106
Posit: from 10.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 0.75L 0.50L 0.25L Jt. 15 Maximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 10.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 10.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 10.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 10.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	I S R E S U In Services Lim Bend Homent (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 0.000m	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106
Posit: from 15. 1 0.75L 0.50L 0.25L Jt. 15 Haximum RESULTS	FOR COM FOR COM FOR COM 100 (m) m End 1 5.000 4.500 3.000 1.500 9.000 +ve Ben -ve Ben FOR COM	opyright Communication 2 Shear Force (kN) 6.176 15.176 24.176 33.176 42.176 ding Moment ding Homent	• A M A L Y S uter and Design MEMBER 26 Amial Comp. (kH) 28.350 28.350 28.350 28.350 145.057 kM. 0.000 kM.	Earl Noment (kW.m) 145.057 129.043 99.528 56.514 0.000	UH (19) 69.0 59.1 43.3 22.9 0.0 from from	*SHEET: 1985 dy [mm] -0.1 -0.1 0.0 0.0 joint 15	23 Slope (deg) 89.747 89.502 89.298 89.158 89.106

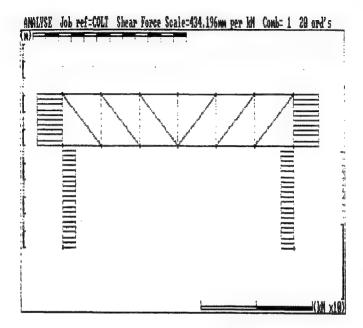
Maximum +ve Bending Homent

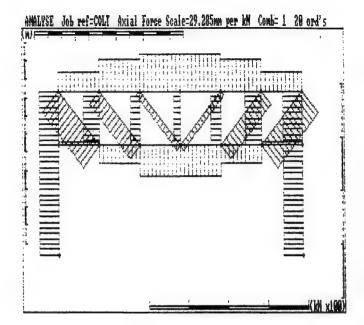
178.943 kH.m at 6.000m from joint 16

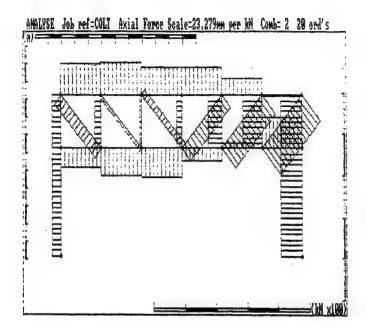




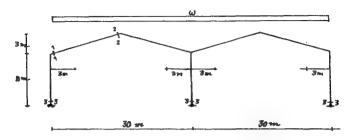


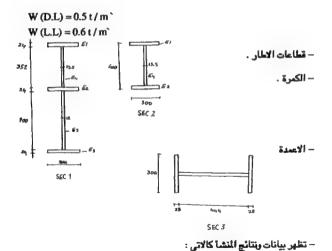






مثال: كما بالرسم الحار هيكلي حديدي (Frame) وعليه الأحمال الموضحة بالرسم





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					* JOB : SFRAME
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* ANALYSE	(C)Copyright	Computer a	nd Design Se	rvices Limite	1 1985

PRAME GEOM	ETRY				

No. of Joints = 8

MEMBERS

		End 1 Dat	ail	s	- 2 -		End 2 Det	tai	le.		- 2 -		: -	
Mem:Jt	: D: .:	X coord					X Coord			Coord		Length		
No.:no		(=)					(m)							
	-2-2-		-1		- 2 -	:-:-		- 8 -			- 8 -		- 2 -	
1:	1:F:	0.000	1	0.000	:	2:2:	0.000			8.000	\$	8.000	8	90.00
2:	2:F:	0.000	2	8.000	:	3:2:	15.000	2		11.000	\$	15.297	\$	11.31
3:	3:2:	15.000	2	11.000	8	SiFi	30.000	\$		8.000	2	15-297	3	-11.31
4:	4171	30.000	1	0.000	8	5:F:	30.000	2		8.000	τ	8.000	ā	90.00
5:	5:F:	30.000	2	8.000	8	6:P:	45.000	8		11.000	1	15.297	1	11.31
6:	6:F:	45.000	z	11.000	2	8:P:	60.000	8		8.000	3	15.297		-11.31
7:	7:2:	60.000	2	0.000	1	0:P:	60.000	2		8.000	:	8.000	ŧ	90.00

TABLE OF SECTIONS

Section	: Area					(if specified)
Number	: (cm2)	: (CM4):		D (seen):		Y (sen)
		3				
	: 335.52	1 538310.5:	1:	24.00:		
	*	2 2	2:	24.00:		
	1	: 8	3:	20.00:	300.00	-722.00
	1	: :	4 :	352.00:	13.50	188.00
	1	8 2	5 :	700.001	12.00	+362.00
		8	8	1		
2	: 191.52	: 55871-1:	1:	24.00	300.00	376.00
	8	8 8	21	24.00:	300.00	0.00
	8	: :	3:	20.00:	0.00	0.00
	8	: :	4:	352.00:	13.50	188.00
	2	£	5:	700.001	0.00	0.00
		: :	1			
3	: 232.36	1 104255.4:	1:	20.00:	300.00	236.00
	1	8 8	2:	444.00:	14.50	. 0.00
	1	1 1	3:	28.00:	300.00	-236.00
		2	1			

SUMMARY OF MEMBER PROPERTIES

Member 1 PRISMATIC : Section Number 3 : Hodulus E = 210000.0 N/mm2

Hember 2 NOW PRISHATIC : Hodulus E # 210000.0 N/mm2

Member 3 NOW PRISHATIC : Modulus E = 210000.0 H/sm2

```
Segment 1 Length = 12.297 m: End 1 Section No. = 2 : End 2 Section No. = 2 : 2 '' 3.000 m: '' '' 2 : '' 2 : '' '' 1
Member 4 PRISMATIC : Section Number 3 : Modulus E = 210000.0 M/mm2
Continued on Next Page )-----
                                              * JOB : SFRANE
                                             *-----
                                              * DATE:
                                              *-----
                          INPUT
                                   DATA
                                             *SHEET: 2
* ANALYSE (C)Copyright Computer and Design Services Limited 1985
· 我们是是我们的自己的,我们就是我们的,我们就会会会到了这个人的,我们就是我们就是我们的的,我们就会会会会会会会会会会会会会会会会会会会会会会会会会会会会会会
SUMMARY OF MEMBER PROPERTIES continued
Member 5 NON PRISMATIC : Modulus E = 210000.0 N/mm2
Segment 1 Length = 3.000 m: End 1 Section No. = 1 : End 2 Section No. = 2
Member 6 NON PRISHATIC : Modulus E = 210000.0 N/mm2
Segment 1 Length = 12.297 m: End 1 Section No. = 2 : End 2 Section No. = 2
    2 '' 3.000 m: '' '' 2 : '' '
Hember 7 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2
------
                              SUPPORTS
Mo. of Supports = 3
 Joint : X Restraint : Y Restraint : Angular Restraint
Bumber: (kH/mm): (kH/mm): (kH.m/radian)
1 : PULL : PULL : ZERO
4 : PULL : PULL : ZERO
7 : PULL : PULL : ZERO
                          ******************
APPLIED LOADS AND HOMENTS
MEMBERS 2 - 3
LOAD CASE :LOAD: POSITIOE :LOAD/MONENT
No: Name :Type: Start: Length: Start Value: End Value
-----
 1: Dead Load: UV: : : 5,000 kN/m:
2: LIVE LOAD 1: UV: : : 6,000 kN/m:
MEMBERS 5 - 6
LOAD CASE :LOAD: POSITION : LOAD / NOMENT
              :Type: Start: Length: Start Value: End Value
No : Name
1: Dead Load: UV : : 5.000 kN/m:
3: LIVE LOAD 2: UV : : 6.000 kN/m:
```

COMBINATIONS

: TABULATED VALUES OF PARTIAL SAFETY FACTORS

LOAD CASE No : Name : 1 : 2 : 3

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Dead Load:1.000:1.000:1.000 LIVE LOAD 1:1.000: :1.000 LIVE LOAD 2: :1.000:1.000 1: 2:

3:

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		4	A H A L Y	SIS RES	U L T S *SHE	ET: 3
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	******	*******				
RESULTS FOR	COMBINA	PION 1				
Joint Displ	acements.	and React:	ions			
deren broke						
Joint No.	dx(mm)	dy (sen)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
. 1	0.00	0.00	0.0082	87.393	162.526	0.000
2	-31.57	-0.27	-0.0046			
3	-6.61	-126.90	0.0008			
Ä	0.00	0.00	-0.0045	-47.285	244.948	0.000
	18.31	-0.40	0.0023			,,,,,
	24.00	24 66	0.0000			

72.526

-40.108

0.000

18.31 24.99 0.00 31.73 Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kH) -480.000 0.000	Ho (kN.m) -11700.000 0.000
Reactions Summation	0.000	-480.000 480.000	-11700.000 11700.000
Summation	0.000	0.000	0.000

-0.40 0.0023 -34.65 -0.0008 0.00 -0.0059 -0.12 -0.0001

BENULTH FOR COMBINATION 2

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kH)	M (kN.m)
1	0.00	0.00	0.0059	40.108	72.526	0.000
2	-31.73	-0.12	0.0001			
3	-24.99	-34.65	0.0000			
4	0.00	0.00	0.0046	47.285	244.948	0.000
5	-18.31	-0.40	-0.0023			
6	6.61	-126.90	-0.0008			
7	0.00	0.00	-0.0082	-87.393	162.526	0.000

8 31.57 -0.27 0.0046
Summation of Forces and Moments

	Px (kH)	Py (kH)	No (kH.m)	
Member Loads	0.000	-480.000	-17100.000	
Joint Loads	0.000	0.000	0.000	
Reactions	0.000	-480.000	-17100.000	
Summation	0.000	480.000	17100.000	
Summation	0.000	0.000	0.000	

					* DA'	mer .
•					*	
			* A N A L Y		U L T S *SHE	P1 4
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			ELFERENCHAN		*********	
ESULTS FOR	COMBINA	TION 3				
oint Displ	acements	and React	ions			
Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00		0.0097	87.657	161.598	0.000
2		-0.26				
3	-21.73	-111.06	0.0010			
4	0.00	0.00	0.0000	0.000	336.803	0.004
5	0.00	-0.55	0.0000			
6	21.73	-111.06	-0.0010			
ž	0.00		-0.0097	-87.657	161.598	0.000
8	43.51	-0.26	0.0031	0,100,		0.00
Summation o	f Torces	and Money				
rannic Lon O	r rorces	GIG HOME!!				
		Px (kN)	Py (kil)	Mo (kN.m)		
Member Load		0.000	-660.000	-19800.000		
Joint Loads		0.000	0.000	0.000		

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Mandan	-	Manchan	

0.000

0.000

0.000

Reactions

Summation

Summation

	Shear (kN)	Maximum Axi	al (kN)	< B	lending Mos	ment (kN.m)	;
Comb.	(Abs. Hax.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	-87.393	162.526	0.000	0.000	0.000	-699.147	8.00
2	-40.109	72.526	0.000	0.000	0.000	770 966	B 00

-19800.000 19800.000

0.000

-660.000 660.000

0.000

3	-87.657	161.598	0.000	0.000	0.000	-701.259	8.000
axim	for Member	2					
oad	Shear (kN)	Maximum Axi	al (kW) «	Be	nding Mom	ent (kN.m)	>
omb.	(Abs. May 1/	Compression	(Tension)	May Ame	Pos. (m)	Max.~ve	Pos. (m)
1	142.231	117.570	0.000	257.159	13.447	-699.147	0.000
2	63.252	53.553	0.000	95.217	13.156	-320.866	0.000
3	141.269	117.570 53.553 117.647	0.000	242.163	13.356	-701.259	0.000
	for Hember						
.cad	Shear (kW)	Maximum Axi	ial (kW)	С Ве	nding Mon	ent (kN.m)	
comb.	(Abs. Max.)(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	-147.082	118.541	0.000	249.297	1.391	-773.365	15.29
2	-68.104	54.523	0.000	87.279	1.132	-395.082	15.29
3	-147.940	118.541 54.523 118.981	0.000	231.320	1.310	-803.307	15.29
						* JOB :	
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AN	ALYSE (C)Copy	right Compute	er and Des	ian Service	es Limited	1985	
	a for Hember	4		*********	*********	********	
heol	Shear (kN)	Maximum Ax.	ial (kN)	< Br	endina Mos	ment (kN.m)	
comb.	/ She May 14	Commenceioni	(Tennion)	May Arra	Son (m)	May	Dog /m
1	47.285	244.948	0.000	378.282	8.000	0.000	0.00
2	-47.285	244.948	0.000	0.000	0.000	-378.282	B.00
3	0.000	244.948 244.948 336.803	0.000	0.000	8.000	0.000	0.00
	a for Hember						
baod	Shear (kN)	Haximum Ax	ial (kN)	< Be	ending Mor	ment (kN.m)	
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max. +ve	Pos. (m)	Maxve	Pos. (m
1	68.104	54.523	0.000	87.279	14.166	-395.083	0.00
2	147.082	118.541	0.000	249.297	13.906	-773.364	0.00
3	147.940	54.523 118.541 118.981	0.000	231.320	13.987	-803.307	0.00
	a for Hember						
		Meximum Ax					
	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (II
1	-63.252	53.553 117.570 117.647	0.000	95.217	2.141	~320.865	15.29
2	-142.231	117.570	0.000	257.159	1.850	-699.148	15.29
3	-141.269	117.647	0.000	242.163	1.941	-701.259	15.2

Maxima for Member 7

Load Shear (kN) Comb. (Abs. Max.)(Co 1 40.108 2 87.393 3 87.657) Max.+ve Pos. (s 320.865 8.06 699.148 8.00	0.000 0.000
RESULTS FOR COMBINA	TION 1 MEMBER 1		
Position (m) Shed from End 1 Jt. 2 8.000 0.75L 6.000 0.50L 4.000 0.25L 2.000 Jt. 1 0.000	ar Force Axial Comp (kN) (k) -87.393 162.55 -87.393 162.55 -87.393 162.55 -87.393 162.55	(kN.m) 26 -699.147 - 26 -524.361 - 26 -349.574 - 26 -174.787 -	dx dy Slope (mm) (mm) (deg) 31.6 -0.3 89.738 34.9 -0.2 90.058 28.6 -0.1 90.287 0.0 90.470
Maximum +ve Bending Maximum -ve Bending			from joint 1 from joint 1

•						* JOB : !	FRAME

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•			* A H A L Y	SIS RESI	JLTS	*SHEET:	6
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RESULTS	FOR COM	BINATION 1	MEMBER 2				
	ion (m)		Axial Comp.		dx	dy	
	m End 1	(kii)	(lcH)	(kH.m)			
It. 3	15.297		85.211	239.064			11.35
		20.884					
	7.649		101.391				
	3.824	101.782			-26.4		
rt. 2	0.000	142.231	117.570	-699.147	-31.6	-0.3	11.04
fax (mor	tve Ben	ding Moment	257.159 bil	.m at 13.44	- from	inint 2	
faw I move	-ve Ben	ding Money	_600 147 km	.m at 0.00	- 4	inine 2	
MALL	-ver per	CANG NUMBER	-077.147 AM	.m ac 0.00	AN LEGE	Joint 2	
RESULTS	FOR CON	BINATION 1	MEMBER 3				
	ion (m)		Axial Comp.			dy	
		(kN)	(kN)		(300)		
It. 5		-147.082		-773.365			-11.17
0.754	11.473	-106.633	110.451	-288.227	14.6	-19-6	-10.75

0.50L 7.649 0.25L 3.824	-66.185 -25.736	102.361 94.271	42.224		-66.1 -109.1	
Jt. 3 0.000		86.181	239.064	-6.6		-11.266
Maximum +ve Be Maximum -ve Be	nding Moment	249.297 km.m a -773.365 km.m a	t 1.391m t 15.297m	from from	joint 3 joint 3	
RESULTS FOR CO						
Position (m)	Shear Force	Axial Comp. Ben	d.Homent	dπ	dy	Slope
from Bnd 1	(ldl)	Axial Comp. Ben (km) 244.948 244.948 244.948 244.948 244.948	(kH.m)	(mm)	(100)	
Jt. 5 B.000	47.285	244.948	378.282	18.3	-0.4	
0.75L 6.000	47.285	244.948	283.712	19.8	-0.3	89.960
0.50L 4.000	47.285	244.948	189.141	16-1	-0.2	89.836
U.25L 2.000	47.285	244.948	94.571	8.9	-0.1 0.0	
Jt. 4 0.000	67.283	244.948	0.000	. 0.0	0.0	89.737
Maximum +ve Be Maximum -ve Be	nding Moment nding Moment	378.282 kW.m a 0.000 kW.m a	t 8.000m	from from	joint 4	
RESULTS FOR CO	MBINATION 1	MEMBER 5 Axial Comp. (km) 39.814 43.492 47.169 50.846 54.523				
from End 1	(k#)	(km)	(kN.m)	/mm)	(mm)	(deg)
Jt. 6 15.297	-5.440	39.814	84.202	25.0	-34.6	11.266
0.75L 11.473	12.946	43.492	69.849	23.4	-26.6	11.112
0.50% 7.649	31.332	47.169	-14.816	20.3	-10.7	11.049
0.25L 3.824	49.718	50.846	-169.793	17.7	2.7	11.211
Jt. 5 0.000	68.104	54.523	-395.083	18.3	-0.4	11.443
Maximum +vo Be	nding Moment	87.279 kM.m a -395.083 kN.m a	t 14.166m	from	joint 5	
MAXIMUM -Ve De	noing moment	-393.U83 KN.M &	. U.UUUM	irom	Joint 2	
	4.44 4433300000	90050000000iiumaak	.==424533368			if the sax sur-up are sax vax.
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Position (m) Shear Force Axial Comp. Bend. Noment from End 1 (kN) (kH) (kR.a) Jt. 8 15.297 -63.252 53.553 -320.865 (mm) 31.7 dx dy Slope (kN) ~63.252 (mm) (deg) -0.1 -11.313 -320.865 0.75L 11.473 -44.866 49.876 -114.130 30.9 -4.2 -11.142 -19.1 -11.067 0.50L 0.25L 7.649 3.824 -26.480 -8.094 46.198 22.293 28.0 42.521 88.404 25.5 25.0 -31.9 -11.181 -34.6 -11.353 Jt. 6 0.000 10.292 38.844 84.202 Maximum +ve Bending Moment 95.217 kM.m at 2.141m from joint 6 Maximum -ve Bending Moment -320.865 kM.m at 15.297m from joint 6

RESULTS	POR	COMBINATION	1	MEMBER	7
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Position (a) Shear Force	Axtal Comp.	Bend. Homent	dz	dy	Slope
from End	1 (100)	(kiii)	(kH.m)	(=)	(mm)	(deg)
Jt. 8 8.0	00 48.108	72.526	320.865	31.7	-0.1	
0.75L 6.0	00 40.108	72,526	240.649	28.9	-0.1	
0.50L 4.0	00 40.108		160.433	21.7	-0.1	
0.25L 2.0			80.216	11.6	0.0	
Jt. 7 0.0			0.000	0.0	0.0	
			0.000	0.0	0.0	03.001
Maximum +ve	Bending Moment	320.865 km	.m at 8.00	on from	ioint 7	
Maximum -ve	Bending Moment	0.000 km		Om from		
					,0200	
RESULTS FOR		MEMBER 1				
Position (Axial Comp.	Bend. Homent	dx	dy	Slope
from End			(kH.m)	(86)	(34)	(deg)
Jt. 2 8.0	00 -40.108	72.526	-320.866	-31.7	-0.1	90.003
0.75L 6.0	00 -40.108	72.526	-240.649	-28.9	-0.1	90.150
0.50L 4.0	00 -40.108	72.526			-0.1	
0.25L 2.0	00 -40.108	72.526	-80.216	-11.6	0.0	90.318
Jt. 1 0.0	00 -40.108	72.526	0.000	0.0	0.0	
Maximum +ve	Bending Moment	0.000 kB	.m at 0.00	Om from	ioint 1	
Maximum -ve	Bending Moment	-320.866 kg	.m at 8.00	Om from	joint 1	
	COMBINATION 2	HENBER 2				
Position (Bend. Homent	dx	dy	Slope
from End			(kM.m)	(ma)	(mm)	(deg)
Jt. 3 15.2			84.201	-25.0	-34.6	11.353
0.75L 11.4		42.521	88.403	-25.5	-31.9	11.181
0.50L 7.6	49 26.480	46.199	22.293	-28.0	-19.1	11.067
0.25L 3.8	24 44.866	49.876	-114.130	-30.9		
	00 63.252		-320.866	-31.7		
Jt. 2 0.0					-4-6	
Jt. 2 0.0						
Haximum +ve	Bending Moment				joint 2	
Haximum +ve						
Maximum +vo Maximum -vo	Bending Moment	-320.866 kH	.m at 0.00	Om from	joint 2	

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RESULTS FOR COMBINATION 2 MEMBER 3

Pomiti	on (m)	Shear Force	Axial Comp.	Bend - Homent	dπ	dv	Slope
	End 1	(Jen)	(lcH)	(kW.m)	(mm)	(mm)	
Jt. 5		-68.104	54.523	-395.082	-18.3	-0.4	-11.443
0.75L	11.473	-49.718	50.846	-169.792	-17.7	2.7	-11.211
0.50T.	7.649	-31 332	47 160	-14 915	-20 3	10.7	11 040

0.25L	3.824	-12.9	46	13.497		9.849	-23.4	-26.6	-11.117
Jt. 3	0.000	5.4		39.815	- 1	34.201	-25.0	-34.6	-11.260
Maximum.	tve Ben	ding Momen ding Momen	t. 87.	.279 kl	.m at	1.13	2m from	joint 3	
Maximum	-ve Ben	ding Momen	t -395	.082 ki	i.m at	15.29	7m from	joint 3	
RESULTS	FOR COM	DINATION	2 MEMBER	4					
Posit:	ion (m)	Shear For	ce Axial	Comp.	Bend.	Moment	dx	dy	STODE
Ero	n End 1	(k	N)	(kH)		(kN.m)	(mat)	(1000.)	{deq
Jt. 5	8.000	-47.2	85 2	44.948	-3	78.282	-18.3	-0.4	89.86
0.75%	. 6.000	-47.2	85 2	44.948	-2	83.712	-19.8	-0.3	90.04
0.50L	4.000	-47.2	85 2	44.948	-1	89.141	-16.1	-0.2	90.16
0.25L	2.000	-47.2	85 2	44.948		94.571	-8.9	-0.1	90.23
Jt. 4	0.000	Shear Por (k -47.2 -47.2 -47.2 -47.2	85 2	44.948		0.000	0.0	0.0	90.26
Maximum	+ve Ber	ding Momen	e 0	.066 k	N.m at	0.00	Om from	joint 4	
Maximum	-ve Ser	ding Momen	t -378	.282 k	M.m at	8.00	Om Erom	joint 4	
RESULTS	POR CO	BINATION	2 MEMBER	5					
							alles	al.	
Posit.	ton (m)	Shear For (k -14.7 25.7 66.1 106.6	ce warer	Comp.	send.	HOMEN C	dx.	4	STOP
fro	m End 1	(#	(H)	(KB)		(KN.m)	(1001)	(1000)	land
Jt. 6	15.297	-14.7	1.3	86.182	2	39.064	0.0	-120.1	10.20
0.75L	11.473	25.7	36	99.271	~	17.786	3.1	-109.1	10.61
0.50L	7.649	66-1	84 1	02.361		42.225	-3.4	-08.1	10.34
0.25L	3.824	106.0	33 1	10.431	-2	88.226	-14.6	-19.0	11.17
Jt. 5	0.000	147.0	82 . 1	18.541	-7	73.364	-18.3	-0.4	11.1/
		. 41 M	. 240	207 5	W	12 00	S- #		
Mar Suprin	tve set	nding Momen nding Homes	249	250 k	M.m. at	0.00	Om from	ioine i	
PAXIMUM	-AG Det	iding Homes	-//3	.309 %	n.m et	0.00	OM LION	Joint .	,
		BINATION							
Posit	ion (m)	Shear Por	ce Arial	Comp.	Bend.	Moment.	dx	dy	slop
20010	e Fed 1	/1	M)	(kN)	W-010-E	(lebt . m)	(mm)	(100)	Ldeg
76 8	35 207	-142 2	21 1	17 570	-6	99.148	31.6	-0.	-11.04
0 757	11 477	Shear Pos () -142.2 -101.7 -61.3	192	09 481	-2	32 564	26.4	-26.6	-10.6B
0.735	7 640	-61 7	72 1	01 391		79 333	16.9	-74	-10.56
0.361	7.047	-61.3 -20.8	94	03.371	2	36.542	9 0	-114	-10.88
U. 43L	3.524	19.5	44	96 211		20 064	5.6	_126	-11.35
ac	0.000	19.5	103	43.211		33.004	0.0	-120.	-11.33
	des Bos	ding Home	+ 257	.159 k	M.m.at	1.85	On from	inint (
Maximum Maximum	- TVG DOS	add no Moreon	· _460	348 5	4 a w	16.75	17m from	inint !	2

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RESULTS FOR COMBINATION 2 MEMBER 7

Position (m) Shear E from End 1 Jt. 8 8.000 87 0.75L 6.000 87 0.25L 2.000 87 Jt. 7 0.000 87	force Axial Comp.	. Bend.Moment	dx	dy	Slope
from End 1	(kN) (kN	(kN.m)	(mm)	(1001)	(deg)
Jt. 8 8-000 87	7.393 162-52	6 699.148	31.6	-0.3	90.262
0.75L 6.000 87	7.393 162.52	6 524.361	34.9	-0.2	89.942
0.50L 4.000 87	7.393 162.52	6 349.574	28.6	-0.1	89.713
0.25L 2.000 B7	7.393 162.52	6 174.787	15.9	-0.1	89.576
Jt. 7 0.000 87	7.393 162.52	6 0.000	9.0	0.0	89.530
Maximum +ve Bending Mos Maximum -ve Bending Mos	ment 699.148	kN.m at 8.000	m from	joint 7	
Maximum -ve Bending Mos	ment 0.000	kN.m at 0.000	om from	joint 7	
					からなる 自日日本
RESULTS FOR COMBINATION	N 3 MEMBER 1				
Position (m) Shear I from End 1 Jt. 2 8.000 -8 0.75L 6.000 -8 0.25L 2.000 -8 Jt. 1 0.000 -8	Porce Axial Comp	. Bend-Homent	et a	dy	Slope
from End 1	(KN) (KN) (kw.m)	(terr)	(mm)	(deg)
Jt. 2 B.000 -8	7.657 161.59	8 -701.259	-43.5	-0.3	89.822
0.75L 6.000 -8	7.657 161.59	8 -525.944	-43.0	-0.2	90.143
0.50L 4.000 -8	7.657 161.59	8 -350.630	-34.6	-0.1	90.373
0.25L 2.000 -B	7.657 161.59	8 -1/5.315	-18.9	~0.1	90.510
Jt. 1 0.000 -8	7.657 161.59	8 0.000	0.0	0.0	90.556
Maximum +ve Bending Mos Maximum -ve Bending Mos	ment. 0.000	KR.m at U.GO	UM ETOE	Joint 1	
Maximum -ve Bending Mos	ment -701.259	KN.M ac 8.00	UM I FOR	Joine 1	
RESULTS FOR COMBINATION					
Bonibion tot Chan-	Booms Buick Comm	Bond Honors	also.	- de-	£1 ama
Position (m) Shear	Force Axial Comp	. Bend . Moment	dx	dy	Slope
from End 1	Force Axial Comp (kW) (kW	Bend.Noment (kN.m)	dx (ma)	dy (===)	Slope (deg)
Fosition (m) Shear 1 from End 1 Jt. 3 15.297 -20	Force Axial Comp (kW) (kW 0.527 85.28	Bend.Noment (kN.m) 8 222.245	dx (mm) -21.7	dy (===) -111.1	Slope (deg) 11.370
Position (m) Shear 1 from End 1 Jt. 3 15.297 -20 0.75L 11.473 15	Force Axial Comp (kN) (kN 0.527 85.28 9.922 93.37	Bend.Homent (kN.m) (kN.m)	dx (mm) -21.7 -23.7	dy (sm.) -111.1 -100.6	Slope (deg) 11.370 10.930
Position (m) Shear 1 from End 1 Jt. 3 15.297 -2: 0.75L 11.473 1: 0.50L 7.649 6:	Force Axial Comp (kW) (kW 0.527 85.28 9.922 93.37 0.371 101.46	. Bend.Homent (kN.m) 8 222.245 8 223.400 8 69.868	dx (mm) -21.7 -23.7 -30.9	dy (mm) -111.1 -100.6 -64.4	Slope (deg) 11.370 10.930 10.632
Position (m) Shear I from End 1 Jt. 3 15.297 -20 0.75L 11.473 1: 0.50L 7.649 66 0.25L 3.824 10	Force Axial Comp (kW) (kN) 0.527 85.28 9.922 93.37 0.371 101.46 0.820 109.55	. Bend.Homent (kN.m) 8 222.245 8 223.400 8 69.868 7 -238.352	dx (mm) -21.7 -23.7 -30.9 -39.4	dy (mm.) -111.1 -100.6 -64.4 -21.2	Slope (deg) 11.370 10.930 10.632 10.765
Position (m) Shear I from End 1 Jt. 3 15.297 -22 0.75L 11.473 11 0.50L 7.649 66 0.25L 3.824 10 Jt. 2 0.000 14	Force Axial Comp (kH) (kN 95.27 85.28 9.922 93.37 0.371 101.46 0.820 109.55 1.269 117.64	. Bend.Noment (kN.m) 8 222.245 8 223.400 8 69.868 7 -238.352 7 -701.259	dx (mm) -21.7 -23.7 -30.9 -39.4 -43.5	dy (===) -111.1 -100.6 -64.4 -21.2 -0.3	Slope (deg) 11.370 10.930 10.632 10.765 11.132
Maximum +ve Bending Mon Maximum -ve Bending Mon	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Ho Maximum -ve Bending Ho RESULTS FOR COMBINATION	ment 242.163 ment -701.259	kN.m at 13.35 kN.m at 0.00	6m from 0m from	joint 2 joint 2	
Maximum +ve Bending Non Maximum -ve Bending Non Maximu	ment 242.163 ment -701.259 M 3 MENHER 3 Omp (AN) (kN) 7.940 118.98 7.491 110.89 7.492 102.80 6.593 94.71 3.855 86.62	Bend Homent (1 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	dx (mm) 0.0 -2.1 -10.3 -21.7	dy (m) -0.66 -11.7 -52.8 -93.2 -111.1	
Maximum +ve Bending Mo Maximum -ve Bending Mo Maximum -ve Bending Mo Maximum -ve Bending Mo From End 1 Jt. 15.297 -14 0.751 15.297 -10 0.50L 7.649 -6 0.25L 3.824 -2 Jt. 3 0.000 Maximum -ve Bending Mo	ment 242.163 -701.259 N 3 MEMBER 3 Porce Axial Comp (kH) (KH) 7.940 118.98 7.491 110.99 6.593 94.71 3.855 86.62	. Bend. Moment 1 - 803.307 2 - 314.888 2 18.844 2 197.888 2 222.245	dx (mm) 0.0 -2.1 -10.3 -21.7	dy (m) 1 -0.6 -11.7 -52.8 -93.2 -111.1	
Maximum +ve Bending Mo Maximum -ve Bending Mo RESULTS FOR COMBINATION Position (m) Shear 1 from End 1 Jt. 5 15.297 -14 0.75L 11.473 -14 0.50L 7.649 -6 0.25L 3.824 -2 Jt. 3 0.000 1 Maximum +ve Bending Mo	ment 242.163 -701.259 N 3 MEXHEER 3 Force Axial Comp (kB) (kB) 7.940 118.98 7.042 102.90 102.90 94.71 3.855 86.62 ment 231.320 ment 403.307	kH.m at 13.35 kH.m at 0.00 Bend. Moment (kH.m) 1 -803.307 2 -314.888 2 197.888 2 222.245 kH.m at 1.31 kK.m at 15.29	dx (mm) 0.0 -2.1 -10.3 -18.3 -21.7 0m from	joint 2 joint 2 dy (sm) -0.6 -11.7 -52.8 -93.2 -111.1 joint 3 joint 3	Slope (deg) -11.310 -10.859 -10.607 -10.834 -11.250
Maximum +ve Bending Mo Maximum -ve Bending Mo Maximum -ve Bending Mo Maximum -ve Bending Mo From End 1 Jt. 15.297 -14 0.751 15.297 -10 0.50L 7.649 -6 0.25L 3.824 -2 Jt. 3 0.000 Maximum -ve Bending Mo	ment 242.163 -701.259 N 3 MEXHEER 3 Force Axial Comp (kB) (kB) 7.940 118.98 7.042 102.90 102.90 94.71 3.855 86.62 ment 231.320 ment 403.307	kH.m at 13.35 kH.m at 0.00 Bend. Moment (kH.m) 1 -803.307 2 -314.888 2 197.888 2 222.245 kH.m at 1.31 kK.m at 15.29	dx (mm) 0.0 -2.1 -10.3 -18.3 -21.7 0m from	joint 2 joint 2 dy (sm) -0.6 -11.7 -52.8 -93.2 -111.1 joint 3 joint 3	Slope (deg) -11.310 -10.859 -10.607 -10.834 -11.250
Maximum +ve Bending Mo Maximum -ve Bending Mo RESULTS FOR COMBINATION Position (m) Shear 1 from End 1 Jt. 5 15.297 -14 0.75L 11.473 -14 0.50L 7.649 -6 0.25L 3.824 -2 Jt. 3 0.000 1 Maximum +ve Bending Mo	ment 242.163 -701.259 N 3 MEXHEER 3 Force Axial Comp (kB) (kB) 7.940 118.98 7.042 102.90 102.90 94.71 3.855 86.62 ment 231.320 ment 403.307	kH.m at 13.35 kH.m at 0.00 Bend. Moment (kH.m) 1 -803.307 2 -314.888 2 197.888 2 222.245 kH.m at 1.31 kK.m at 15.29	dx (mm) 0.0 -2.1 -10.3 -18.3 -21.7 0m from	joint 2 joint 2 dy (sm) -0.6 -11.7 -52.8 -93.2 -111.1 joint 3 joint 3	Slope (deg) -11.310 -10.859 -10.607 -10.834 -11.250
Maximum +ve Bending Mo Maximum -ve Bending Mo RESULTS FOR COMBINATION Position (m) Shear 1 from End 1 Jt. 5 15.297 -14 0.75L 11.473 -14 0.50L 7.649 -6 0.25L 3.824 -2 Jt. 3 0.000 1 Maximum +ve Bending Mo	ment 242.163 -701.259 N 3 MEXHEER 3 Force Axial Comp (kB) (kB) 7.940 118.98 7.042 102.90 102.90 94.71 3.855 86.62 ment 231.320 ment 403.307	kH.m at 13.35 kH.m at 0.00 Bend. Moment (kH.m) 1 -803.307 2 -314.888 2 197.888 2 222.245 kH.m at 1.31 kK.m at 15.29	dx (mm) 0.0 -2.1 -10.3 -18.3 -21.7 0m from	joint 2 joint 2 dy (sm) -0.6 -11.7 -52.8 -93.2 -111.1 joint 3 joint 3	Slope (deg) -11.310 -10.859 -10.607 -10.834 -11.250

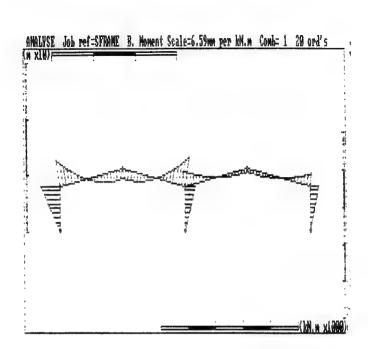
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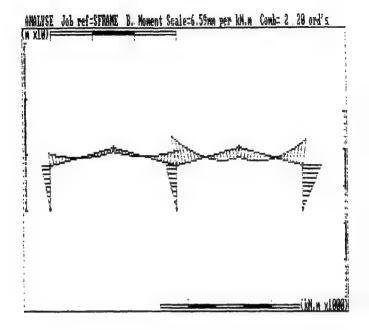
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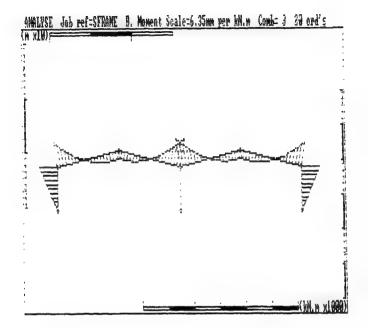
. . ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMPLINATION 3 MEMBER 4 Position (m) Shear Force Axial Comp. Bend. Moment dy Slope dx (kH.m) (==) (deg) from End 1 (kN) (kH) 336.803 8.000 0.000 0.0 -0.6 90.000 6.000 0.000 336.803 0.000 0.0 -0.4 90.000 -0.3 90.000 0.75% 4.000 0.000 336.803 0.0 0.50% -0.1 90.000 0.25L 2.000 0.000 336.803 0.0 0.0 90.000 Jt. 4 0.000 0.000 336.803 0.000 0.0 Maximum +ve Bending Moment 0.000 kN.m at 8.000m from joint 4 Maximum -ve Bending Moment 0.000 kM.m at 0.000m from joint 4 RESULTS FOR COMBINATION 3 MEMBER 5 Position (m) Shear Porce Axial Comp. Bend. Homent dv dv Slope dy (mm) (kH) 86.622 from End 1 (kN) -13.855 (kH.m) (mm) (deg) 222.245 -111.i Jt. 15.297 21.7 11.250 -93.2 10.834 -52.8 10.607 0.75L 11.473 26.593 94.712 197.888 18.3 7.649 102.802 67.042 18.844 10.3 0.50L 107.491 0.25L 3.824 110.892 -314.888 2.1 -11.7 10.859 0.000 147.940 118.981 -803.307 0.0 -0.6 11.310 Jt. 5 Maximum +ve Bending Moment 231.320 kN.m at 13.987m from joint 5
Maximum -ve Bending Moment -803.307 kN.m at 0.000m from joint 5 PERSONAL POR COMPLICATION 3 MEMBER 6
 Position (m)
 Shear Force from End 1
 Axial Comp. Bend. Moment (km)
 dx
 dy
 Slope (mm)
 degl (mm)
 de -141.467 117.547 -100.820 109.557 -60.371 101.468 -19.922 93.378 20.527 85.288 0.75L -238.354 69.868 223.400 7.649 0.50L 30.9 -64.4 -10.632 23.7 -100.6 -10.930 0.25L 3.824 222.245 0.000 21.7 -111.1 -11.370 Harimum +ve Bending Moment 242.163 kN.m at 1.94lm from joint 6
Maximum -ve Bending Moment -701.259 kN.m at 15.297m from joint 6 RESULTS FOR COMBINATION 3 MEMBER 7

Posit:	ion (m)	Shear Porce	Axial Comp.	Bend . Homent	dz	dy	Slope
from	a End 1	(kH)	(kil)	(kN.m)	(mm)	(mm)	(deg)
Jt. 8	8.000	87.657	161.598	701.259	43.5	-0.3	90.178
0.75L	6.000	87.657	161.598	525.944	43.8	-0.2	89.857
0.50L	4.000	87.657	161.598	350.629	34.6	-0.1	89.627
0.25%	2.000	87.657	161.598	175.315	18.9	-0-1	89.490
Jt. 7	0.000	87.657	161.598	0.000	0.0	0.0	89.444

Maximum +ve Bending Moment 701.259 kN.m at 8.000m from joint 7 Maximum -ve Bending Homent 0.000 kN.m at 0.000m from joint 7







مثال : كما بالرسم أطار هيكلي حديدى (Frame) وبه ونش متحرك على الأعمدة

الرسم بالرسم با

W (D.L) = 0.175 t/m

W(L.L) = 0.225 t/m

W1 (W.L) = 0.225 t/m

W1 (W.R) = -0.1125 t/m

W2 (W.L) = 0.1125 t/m

W2 (W.R) = -0.225 t/m

M1 = -3.825 m.t

 $M2 = 3.825 \, \text{m.t}$

H1 = 1t

H2 = -1 t

قطاح الأعمدة

Sec 1-1 IPE 360

Sec 4-4 IPE 220

قطاع الكمر

Sec 2-2 IPE 300

Sec 3-3 IPE 200

- تظهر بيانات ونتائج المنشأ كالأتي:

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ANNUAL (C)CODALIGHE COMPACES BUT DESIGN SELATORS NAMED OF	
FRAME GEOMETRY	
No. of Joints = 7	
MEMBERS	
End 1 Details End 2 Details	
Mem:Jt.:C: X coord: Y coord:Jt.:C: X Coord: Y Coord No.:no.:: (m): (m):no.:: (m):	: Length : Slope
1: 1:P: 0.000: 0.000: 2:P: 0.000: 7.200 2: 2:F: 0.000: 7.200: 3:P: 10.500: 7.650 3: 4:P: 10.500: 3.250: 3:P: 10.500: 7.650 4: 5:P: 10.500: 0.000: 4:P: 10.500: 3.250 5: 4:P: 10.500: 3.250: 6:P: 15.500: 3.250 6: 7:P: 15.500: 0.000: 6:F: 15.500: 3.000	: 7.200 : 90.00
2: 2:F: 0.000 : 7.200 : 3:F: 10.500 : 7.650	: 10.510 : 2.45
3: 4:F: 10.500 : 3.250 : 3:F: 10.500 : 7.650	: 4.400 : 90.00
4: 5:F: 10.500: 0.000: 4:F: 10.500: 3.250	: 3.250 : 90.00
5: 4:P: 10.500: 3.250: 6:F: 15.500: 3.000	: 5.006 : -2.86
6: 7:F: 15.500: 0.000: 6:F: 15.500: 3.000	: 3.000 : 90.00
TABLE OF SECTIONS	
Section: Area: Inertia: Rectangular Elements (if spec	ified)
Number: (cm2): (cm4): No: D (mm): H (mm): Y (m	=)
1 : 72.20: 17270.0: : : : :	
3 . 52 90. 8360 0	
2 : 53.80: 8360.0: : : :	
3 : 28.50: 1940.0: : : :	
4 1 33.40: 2770.0: : : :	
SUMMARY OF MEMBER PROPERTIES	
Hember 1 PRISHATIC : Section Number 1 : Modulus E = 21000	
Hember 2 PRISHATIC : Section Number 2 : Modulus E = 21000	
Hember 3 - 4 PRISMATIC : Section Number 3 : Modulus E = 2	10000.0 N/mm2
Member 5 PRISMATIC : Section Number 3 : Modulus E = 21000	0.0 N/mm2
Member & BRICHARIC - Continu Number 4 - Modulus P - 21000	

Hember 1 PRISMATIC : Section Number 1 : Modulus E = 210000.0 N/mm2
Hember 2 PRISMATIC : Section Number 2 : Modulus E = 210000.0 N/mm2
Member 3 - 4 PRISMATIC : Section Number 1 : Modulus E = 210000.0 N/mm2
Member 5 PRISHATIC : Section Number 3 : Modulus E = 210000.0 N/mm2
Member 6 PRISMATIC : Section Number 4 : Nodulus E = 210000.0 N/ms2
SUPPORTS

No. of Supports = 3

Number	:	(kN/mm) :	(kN/mm)	2	Angular Restrain (kW.m/radian
1	:	FULL		FULL	8	ZERO
5 7	;	PULL	:	PULL PULL	1 1	ZERO ZERO

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EDILIND LOADS AND MOMENTS	
	:
HENSER 1	·
LOAD CASE :LOAD: POSITIO	N : LOAD/HONENT
No : Name :Type: Start:	Length: Start Value: End Value
3: windleft: UB : : : : : : : : : : : : : : : : : :	: 2-250 kN/m: .
4: windright: UH : :	: -1.125 kH/m:
6: cleft2: PH : 5.500 m :	: 10.000 kN :
MEMBER 2	
LOAD CASE :LOAD: POSITIO	B LOAD/MONENT
No : Name :Type: Start:	Length: Start Value: End Value
1: Dead Load: UV : : 2: Imposed Load: UV : :	: 1.750 kN/m:
2: Imposed Load: UV : :	: 2.250 kN/m:
HEMBER 3	
LOAD CASE :LOAD: POSITIO	H : LOAD / NOMENT
L O A D C A S :LOAD: P O S I T I (No : Name	Length: Start Value: End Value
3: windleft: UH : :	1 1.125 kN/m:
4: windright: UH : :	: -2.250 kH/m:
7: crightl: M : 2.250 m :	: 38.250 kH.m:
	1 -10.000 kg (
MENCER 5	
LOAD CASE :LOAD: POSITIO	N : LOAD/NOMENT
No: Hame :Type: Start:	Length: Start Value: End Value
1: Dead Load: UV : :	: 1.750 kN/m:
No : Name :Type: Start: 1: Dead Load: UV : : 2: Imposed Load: UV : ;	: 2.250 kN/m:
MEMBER 6	
LOAD CASE :LOAD: POSITIO	ON . LOAD / MONENT
Ho: Hame :Type: Start:	Length: Start Value: End Value
3: windleft: UH : : 4: windright: UH : :	: 1.125 kN/m:
4: windright: UH : :	: -2.250 kN/m:

COMBINATIONS

OAD	CASE	- Combin	ation No	mher	
o : Name				: 4 : 5	
	Dead Lo			ed on Next Page }	
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OMBINAT	IONS conti	nued : TABULA : Combin : 1 :	ATED VALUE 2 : 3	Design Services Limi JES OF PARTIAL SAFETY Index 1 : 4 : 5	ted 1985
OMBINAT	CASE	nued : TABULA : Combin : 1 :	ATED VALUE 2 : 3	Design Services Limi JES OF PARTIAL SAFSTY mber 1 : 4 : 5	ted 1985
OMBINAT	CASE e Imposed Lo	nued : TABULA : Combin : 1 ::2 ad:1.000:1	ATED VALUE ation Nu 2 : 3	JES OF PARTIAL SAFETY 1 : 4 : 5 100: :	ted 1985
OMBINAT	C A S E E Imposed Lowindle windle	rued : TABULA : Combin : 1 :	ATED VALUE ation Nu 2: 3	JES OF PARTIAL SAFETY 1 2 4 : 5 1 : 4 : 5 1 : 5	ted 1985
OMBINAT:	C A S E E Imposed Lo windle windrig clef	TABULA Combin 1 : 1 : :	ATED VALUATION No. 2: 3 3 1.000:1.01.000:	Design Services Limi JES OF PARTIAL SAFETY mber 1 : 4 : 5 100: : : : : : : : : : : : : : : : : : :	ted 1985
OMBINAT	C A S E E Imposed Lo windle windrig clef	rued : TABULA : Combin : 1 :	ATED VALUATION NU 2 : 3	JES OF PARTIAL SAFETY imber 1 : 4 : 5 1: 000: 1: 1:000:	ted 1985

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RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (mm)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0018	4.716	21.887	0.000
	-4.98	-0.10	-0.0016			
	-5.03	-0.12	0.0023			
4	-0.33	-0.06	0.0003			
5	0.00	0.00	0.0000	-1.849	28.249	0.000
	-0.36	-0.05	0.0016			
7	0.00	0.00	-0.0006	-2.867	11.864	0.000

Summation of Forces and Homents

Nember Loads Joint Loads	Px (kN) 0.000 0.000	Py (kH) -62.000 0.000	Mo (kH.m) -480.500 0.000
Reactions Summation	0.000	-62.000 62.000	-480.500 480.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 2

Joint Displacements and Reactions

Joint No.	dx(ma)	dy (ma)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	-0.0076	-8.647	14.718	0.000
2	46.74	-0.07	~0.0053			
3	46.67	-0.15	-0.0017			
4	25.31	-0.07	-0.0072			
5	0.00	0.00	-0.0081	-6.554	32.403	0.000
6	25.26	-0.06	-0.0043			
7	0.00	0.00	-0.0106	-9.324	14.879	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 24.525 0.000	Py (kM) -62.000 0.000	Ho (kN.m) -570.860 0.000	
Reactions	24.525	-62.000	-570.860	
Summation	~24.525	62.000	570.860	
Summation	0.000	0.000	0.000	

建国家共享工作组织产业企业工作的实验,以企业产品企业的企业。2014年2000年中央企业企业的企业企业企业企业企业企业企业工工工程的企业企业工工工程的企业工工 工程的企业工工程的企业工工程的企业工工程的企业工工程和企业工工程的企业工程和企业工程的企业工程和企业工程和企业工程和企业工程和企业工程和企业工程和企业工程和企业工程和									
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RESULTS FOR COMBINATION 3

Joint Displacements and Reactions

Joint	No.	dx(mm)	dy (==)	0(rad)	Fx (kii)	Py (kN)	H (kH.m)
1		0.00	0.00	0.0109	14.283	29.326	0.800
2		-57.40	-0.14	0.0026			
3		-57.47	-0.09	0.0058			
4		-27.39	-0.05	0.6079			
5		0.00	0.00	0.0087	5.041	23.838	0.000
6		-27.40	-0.04	0.0076			
7		0.00	0.00	0.0101	5.425	0.836	0.000

Summation of Forces and Homents

	Px (kH)	Py (kH)	Ho (kH.m)
Hember Loads	-24.750	-62.000	-387.260
Joint Loads	0.000	0.000	0.000
Reactions	-24.750	-62.000	-387-260
Summation	24.750	62.000	387.260
	~	~~~~~~	
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 4

Joint Displacements and Reactions

Joint No.	dx(mm) 0.00		0(rad) -0.0076	Px (kW) -2.806	Py (kW) -7.497	M (kN.m) 0.000
-----------	----------------	--	-------------------	-------------------	-------------------	-------------------

2	48.88	0-04	-0.0042			
3	48.82	-0.03	-0.0040			
4	23.43	-0.01	-0.0069			
5	0.00	0.00	-0.0073	-2.724	4.592	0.000
6	23.40	-0.01	-0.0055			
7	0.00	0.00	-0.0090	-4.470	2.905	0.000

Summation of Forces and Noments

Member Loads Joint Loads	Px (kW) 10.000 0.000	Py (kH) 0.000 0.000	Ho (kM.m) -93.250 0.000
Reactions	10.000	0.000	~93.250
Sween tion	-10.000	0.000	93.250
Summation	0.000	0.000	0.000

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RESULTS FOR COMMINATION 5

Joint Displacements and Reactions

Joint No.	dx(ma)	dy(ma)	0(rad)	Px (kH)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0079	5.425	7.584	0.000
2	-47.38	-0.04	0.0040			
3	-47.44	0.03	0.0037			
	-21.97	0.01	0.0067			
5	0.00	0.00	0.0068	0.385	-4.860	0.000
	-21.93	0.01	0.0051			
7	0.00	0.00	0.0084	4.190	-2.724	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kH) ~10.000 0.000	Py (kH) 0.000 0.000	No (kH.m) 93.250 0.000
Reactions Summation	-10.000 10.000	0.000	93.250 -93.250
Summation	0.000	0.000	0.000

 	 Member	

Load	Shear (kN)	Maximum Axi	al (kii)	< B	ending Mom	ent (kW.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
3	-4.716	21.887	0.000	0.000	0.000	-33.958	7.200
2	B.647	14.718	0.000	16.616	3.843	0.000	0.000
3	-14.283	29.326	0.000	0.000	0.000	-73.680	7.200
4	-7.194	0.000	7.497	53.686	5.500	0.000	0.000
5	5.42\$	7.584	0.000	0.000	0.000	~39.059	7.200

Maxima for Member 2

	Shear (kN)	Maximum Axi				ent (kN.m)	>
Comb.		Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	21.665	5.649	0.000	24.824	5.426	-33.958	0.000
2	-27.501	8.176	0.000	29.838	3.602	-65.424	10.510
3	29.034	7.433	0.000	31.886	7.272	-73.680	0.000
- 4	-7.799	6.866	0.000	41.457	0.000	-40.504	10.510
5	7.345	5.745	0.000	38.132	10.510	~39.059	0.000

Maxima for Member 3

	Shear (kW)		al (kW)	< B	ending Nom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Nax.+ve	Pos. (m)	Hazve	Pos. (m)
1	4.716	20.113	0.000	26.762	4.400	0.000	0.000
2	12.503	27.282	0.000	65.424	4.400	0.000	0.000
3	6.183		0.000	0.000	0.000	-19.454	1.652
- 4	7.194	7.497	0.000	40.504	4.400	0.000	9.000
5	5.425	0.000	7.584	0.000	0.000	-49.795	2.250

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Maxima for Member 4

	Shear (kH)		inl (kil)	< E	lending Hom	ent (kW.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Hax. tve	Pos. (m)	Maxve	Pos. (m)
1	1.849		0.000	6.010	3.250	0.000	0.000
2	6.554		0.000	21.301	3.250	0.000	0.000
3	-5.041		0.000	8.000	0.000	-16.385	3.250
- 4	2.724		0.000	8.852	3.250	0.000	0.000
5	-0.385	0.000	4.860	0.000	0.000	-1.251	3.250

Maxima for Hember 5

	Shear (kH)	Haximum Axi	al (km)	< B	ending Now	est (kH.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Nax.+ve	Pos. (m)	Maxve	Pos. (8)
1	-11.706		0.000	8.569	2.072	-8.602	5.006
2	-14.563	6-684	0.000	3.670	1.356	-22.908	5.006
3	11.216	1.764	0.000	15.764	2.811	0.000	0.000
4	-2.678	4.609	0.000	0.000	0.000	-13 409	8 006

5	2.511	0.000	4.321	12.571	5-006	0.000	0.000
Maxima	for Member 6		*.			_	
Load S	hear (kN)	Maximum Ax.	ial (kN) <-	Bene	ding Momen	t (kN.m)	>
Comb. (Abs. Max.)(Co	moression)	(Tension)	fax.+ve Po	os. (m.) /	taxve	Pos. (m)
1	2.867			8.602	3.000	0.000	
2	9.324	14.879	0.000	22.908	3.000	0.000	
3		8.836		0.000	0.000	-6.541	2.411
ä	4.470		0.000	13.409	3.000	0.000	0.000
5	-4.190	0.000		0.000		-12.571	
	POR COMBINA		MBER 1				01
			xial Comp.	Bend. Homen			
fro		(Jest)		(ldt.m			(deg)
Jt. 2	7.200	-4.716	21.887				
0.75L	5.400	-4.716	21.887				
0.50L	3.600	-4.716	21.887				
0.25L	1.800	-4.716	21.887	-8.49			
Jt. 1	0.000	-4.716	21.887	0.00	0.0	0.0	90.104
Maximum	+ve Beading	Moment	0.000 km	mat 0.	000m from	joint 1	
	-ve Bending			.m at 7.	200m from	joint 1	

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RESULTS FOR COMBINATION 1	CEMBER 2	
1000010 1011 0010120111011 1 1		
Position (m) Shear Force	Axial Comp. Bend. Home:	at dx dy Slope
from End 1 (kW)	(kH) (kH.)	
Jt. 3 10.510 -20.296	3.851 -26.7	
0.75L 7.882 -9.806	4.300 12.7	
0.50L 5.255 0.685		65 -4.5 -12.4 2.444
0.25L 2.627 11.175		85 -4.7 -7.6 2.278
Jt. 2 0.000 21.665	5.649 -33.9	58 -5.0 -0.1 2.365
Maximum +ve Bending Moment	24.824 kN.m at 5	.426m from joint 2
Maximum -ve Bending Moment		.000m from joint 2

Positio	on (m)	Shear Force	Axial Comp.	Bend . Moment	dx	dv	Slone
	End 1	(kH)			(mm)		(deg)
t. 3	4.400				-5.0		
	3.300	4.716	20 112	71 674			
.75L	2.200	4.716	20.113	16.386			
1.25%	1.100	4.710	20.113	11.198	-0.8	-0.1	
It. 4	0.000	4.71	20.113				
Maximum	+ve Ben	ding Moment	26.762 k	N.m. at 4.40	Om from	joint 4	
				N.m at '0.00			
		BINATION 1					
Positi				Bend Honent			Slop
from		{ kbi	(301)	(kH.m)	(PM)	(mm)	
		1.849		6.010		-0.1	
).75L	2.438	1.049	28.249	4.507	-0.2	0.0	
0.50L	1.625	1.84	28.249	3.005	-0.1		
).25L Jt. 5	0.813	1.84	28.249	1.502	0.0	0.0	
rt. 5	0.000	1.84	28.249	0.000	0.0	0.0	90.00
Maximum	tve Ber	ding Moment	6.010 k	N.m at 3.25	Om from	joint 5	
4aximum	-ve Ber	ding Moment	0.000 k	N.m at 0.00	Om from	joint 5	
		BINATION 1					
WD0219	· OK CO						
Positi				Bend. Homent			
	End 1	(lebi	(kH)	(kH.m)	(mm)		(deg
Jt. 6	5.006	(kB -11.70 -6.71	AXIAL COMP.	-8.602	-0.4	-0.1	
0.75L	3.755	-6.71			-0.5	-2.9	
			3 2.957	8.199	-0.6	-4.8	
				7.225			
Jt. 4	0.000	8.26	2.457	0.000	-0.3	-0.1	-3.05
			8.569 3				
Mariana	Aug Ber				Zm from	igint 6	

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RESULTS FOR COMBINATION 1 !	CEMBER 6	

Posit	ion (m)	Shear Force	Axial Comp.	Bend. Homent	dx	dy	Slope
fro	m End 1	(Juli)	(308)	(kif.m)	(#EL)	(mm)	(deg)
Jt. 6	3.000	2.867	11.864	8.602	-0.4	-0.1	90.092
0.75%	2.250	2.867	11.864	6.451	0.5	0.0	90.036

0.50L 1.500	2 867	11 864		4.301	0.7	0.0	89.996
0.25L 0.750 Jt. 7 0.000	2.007	11 864		2.150	0.4	0.0	89.972
0.232 0.730	2.007	11 064		0.000	0.0	0.0	89.964
JE. / 0.000	2.867	17.004		0.90%	9.0	0.0	
Mandaum Ave Bon	diam Manage	0 CO2 hw		3 000=	from	inint 7	
Maximum +ve Ben Maximum -ve Ben	ding Noment	0.802 AM.		0.000=	from	inint 7	
Maximum -As Den	ding moment	G.000 KM	.m at	0.000m	FION	JOING 7	
RESULTS FOR COM							
m	Oh	A-1-1 A		Managa	des	da	Clope
LOSITION (W)	Shear Force	AXIAI COMP.	nena.	POWER C	4	4	Stope
from Eng 1	(KH)	(JCEI)		(KN.B)	(mar.)	(1000)	(deg)
Jt. 2 7.200	-7.553	14.718		3.939	46.7	-0.1	89.698
0.75L 5.400	-3.503	14.718		13.890	36.9	-0.1	89.671
0.50L 3.600	0.547	14.718		16.550	25.9	0.0	89.626
0.25L 1.800	4.597	14.718		11.920	13.5	0.0	89.584
Position (m) from End 1 Jt. 2 7.200 0.75L 5.400 0.50L 3.600 0.25L 1.800 Jt. 1 0.000	8.647	14.718		0.000	0.0	0.0	B9.565
Maximum +ve Ber	ding Noment	16.616 kN	.m at	3.843m	from	joint 1	
Maximum -ve Ber	ding Homent	0.000 kN	.m at	0.000m	from	joint 1	
Maximum +ve Ber Maximum -ve Ber							
RESULTS FOR CO	BINATION 2	MEMBER 2					
Position (m)	Shear Force	Axial Comp.	Bend.	Moment	dx	dy	Slope
from End 1 Jt. 3 10.510 0.75L 7.882 0.50L 5.255 0.25L 2.627	(kN)	(3:31)		(kH-m)	(mm)	(mm)	(deg)
3 30.510	-27 581	6.378		65.424	46.7	-0.4	2.358
0 757. 7 997	-17 090	6.827		-6.739	46.9	-4.3	2.64B
0.730 7.001	-5 600	7 277		24 383	47 2	-12.0	2 553
0.305 3.233	-0.000	7 777		27 047	47 3	-11 1	2 200
Jt. 2 0.000	3.070	8.176		3 030	46 7	-0.1	2.152
Je. 2 0.000	14.361	8.110		3.737	40.7	-0.1	2.132
						1.1	
Maximum +ve Ber	iding Moment	29.838 KM	-m at	3.602M	LLOS	Joint 2	
Maximum +ve Ber Maximum -ve Ber	nding Moment	-65.424 kN	.m at	10.510m	ELOM	joint 2	
RESULTS FOR CO	(BINATION 2	MEMBER 3					
Position (m)	Shear Force	AKIEI COMP.	Bend.	Moment	dx	dy	Probe
from End 1	(301)	(kH)		(KH.m)	(100)	(mm)	(deg)
Jt. 3 4.400	7.553	27.202		65.424	46.7	-0.1	89.904
0.75L 3.300	8.790	27.282		56.435	43.8	-0.1	89.798
0.50L 2.200	10.028	27.282		46.085	39.0	-0.1	89.709
0.25L 1.100	11,265	27.282		34.374	32.7	-0.1	89.639
Position (m) from End 1 Jt. 3 4.400 0.75L 3.300 0.50L 2.200 0.25L 1.100 Jt. 4 0.000	12.503	27.282		21.301	25.3	-0.1	89.590
Maximum two Box	ding Moment	65.424 kW	an at	4.400m	from	ioint 4	
Maximum +ve Ber Maximum -ve Ber	nding Moment	0.000 km		0.000	from	ioint 4	
LIGHTHAM -AE DEI	reary rought	2.000 AM		7.000M		Jorne 4	
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RESULTS FOR COMBINATION 2 MEMBER 1

Shear Force 6.554 6.554 6.554 6.554 6.554 6.554 6.554 d.iding Homent HEINATION 2 Shear Force (RN) -14.563 -9.570 0.416 5.412		t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
nding Moment nding Moment MBINATION 2	21.301 kN.m a 0.000 kN.m a MEMBER 5	t 3.250m	from	joint 5 joint 5	
(BINATION 2	MEMBER 5				
(BINATION 2	MEMBER 5				
Shear Force (kN) -14.563 -9.570 -4.576 0.418 5.412	Axial Comp. Ben (kM) 6.684 6.434	d.Homent (kN.m)	dx		
(NN) -14.563 -9.570 -4.576 0.418 5.412	(kH) 6.684 6.434	(KM.m)		dy	Slope
-14.563 -9.570 -4.576 0.418 5.412	6.684		(mm)	(mm)	(deg)
-9.570 -4.576 0.418 5.412	6.434	~22.908	25.3	-0.1	-3.107
-4.576 0.418 5.412		-7.806	25.4	1.9	-2.845
0.418	6.185	1.046	25.3	0.7	-2.795
5.412	5.935	3.648	25.3	-0.3	~2.846
	5.685	0.000	25.3	-0.1	-2.887
nding Moment	3.670 kN.m a	t 1.356m	from	joint 4	
nding Moment	-22.908 kN.m a	t 5.006m	from	joint 4	
MBINATION 2	MEMBER 6				
Shear Force	Axial Comp. Ber	d. Howent	dx	dy	Slope
(kN)	()cN)	(kH.m)	(mm)	(mm)	(deg)
5.949	14.879	22.908	25.3	-0.1	89.756
6.792	14.879	18.130	21.0	0.0	89.604
7 636	14 979	12 720	15.0	0.0	89 489
9 490	14 070	6 676	7.0	0.0	80 417
0.400	14-079	0.070	7.0	0.0	09.411
9.324	14.879	0.000	0.0	0.0	89.392
nding Moment	22.908 kM.m	at 3.000s	from	joint 7	
	*****	15 0.0001		JOINE /	
Shear Force	Axial Comp. Ber	ad. Homent	dix	dy	Slope
(80)	(KN)	(N.M - M)	1-1	(mm)	(deg)
-6.183	29.320	-/3.080	-27.4	-0.1	30.130
-8.208	29.326	-60.728	-49.6	-0.1	90.342
-10.233	29.326	-44.130	-36.4	-0.1	90.492
-12.258	29.326	-23.888	-19.2	0.0	90.589
-14.283	29.326	0.000	0.0	0.0	90.624
	-73.680 kM.m.	a 7 700.			
	Shear Force (kN) 5.949 6.792 7.636 8.480 9.324 anding Moment minding Moment (kN)	#BINATION 2 MEMBER 6 Shear Force Axial Comp. (kN) (kN) 5.949 14.879 6.792 14.879 7.636 14.879 8.480 14.879 9.324 14.283 29.326 14.283 29.326 14.283 29.326	### WEINATION 2 NEMBER 6 Shear Force Axial Comp. (kN (kN m) (kN m)	Shear Force	Shear Force

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* A W A L Y S I S R E S U L T S *SHEET: * ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 3 MINNER 2 ďx ďΨ Slope Position (m) Shear Force Axial Comp. Bend.Moment from End 1 (kM) (kM:m) (kM:m) (deg) -12.927 Jr. 3 10.510 5.635 10.958 -97.5 -0.1 2.789 2.588 -11.5 0.75L 7.882 -2.437 6.085 31.142 -57.0 -56.9 -11.6 0.50L 5.255 8.053 6.534 23.764 2.333 -57.3 -3.2 2.260 0.25L 2.627 18.544 6.984 -11.177 0.000 -73.680 -57.4 -0.1 2.604 Jt. 2 29.034 7.433 Haximum +ve Bending Moment 31.886 kH.m at Haximum -ve Bending Homent -73.680 kH.m at 7.272m from joint 2 0.000m from joint 2 RESULTS FOR COMBINATION 3 MEMBER 3 Slope dx dy Position (m) Shear Force Axial Comp. Bend. Homent (kH.m) (deg) from End 1 (kW) (kill) (=) (m) 6.183 12.674 -57.5 -0.1 90.335 Jt. 3 4.400 -10.958 3.708 0.75L 3.300 -50.8 -0.1 90.359 12.674 -16.398 -43.6 -0.1 90.390 0.50L 2.200 1.233 12.674 -19.116 0.25L 1.100 12.674 -19.112 -35.8 -0.1 96.424 -1.242-0.1 90.455 0.000 -3.71712.674 -16.385 -27.4 0.000 kW.m at 0.000m from joint 4 -19.454 kW.m at 1.652m from joint 4 Maximum +ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 3 MEMBER 4 Fosition (m) Shear Force Axial Comp. Send. Homent from End 1 (kH) (kH) (kH.m) dx ďΨ Slope from End 1 Jt. 4 3,250 (400) (deg) 90.455 -5.041 23.830 -16.385 -27.4 -0.1 0.75L -5.041 -12.288 -20.8 8.0 90.473 2.438 23.838 -14.3 0.0 90.486 0.5QL 1.625 -5.041 23.638 -9.192 -5.041 0.25L 0.813 23.838 -4.096 -7.0 0.0 90.494 6.0 0.6 90.497 Jt. 5 0.000 -5.041 23.838 0.000 0.000 km.m at 0.000m from joint 5 -16.385 km.m at 3.250m from joint 5 Maximum +ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 3 NUMBER 5 Position (m) Shear Force Axial Comp. Bend.Homent from End 1 (kH) (kH) (kH.m) dx ďΨ Slope (==) (mm) (deg) 5.006 -8.759 1.764 -27-4 0.0 -2.425 Jt. 6 6.151 13.988 -27.8 -7.8 -2.611 0.75L 3.755 -1.765 1.515

•••	4	******	*****		4,	
	tve Bending		15.764 kM.m at		from joint	
Maximum	-ve Bendine	s Moment	0.000 kH.m at	0.0002	from joint	- 4

1.229

6.222

11 216

0.50L

0.25L

2.503

1.252

0.000

1.265

1.015

0 766

-27.9

-27.8

-27 4

15.575

10.913

0 000

-10.4

-7.2 -3.123

-0.1 -3.228

-2.860

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		GIMMION 7						*******
	ion (m)		Axial Comp.	Bend.			dy	Slope
	m End 1	(kel)	(kH)		(kH.m)			(deg)
Jt. 6		1.325	8.836		-6.151	-27.4	0.0	
0.75L	2.250		8.836		-6.511	-21.4		
0.50L	1.500	-2.050	8.836		-5.607			
	0.750		8.836			-7.5	0.0	
Jt. 7	0.000	-5.425	8.836		0.000	0.0	0.0	90.579
Maximum	+ve Ben	ding Moment	0.000 km	at at	0.000	m from	joint 7	
MAX1MUM Popular	-ve Bes	ding Moment	-6.541 KH	I.M. At	2.41	MOTE AL	Joint 7	*******
RESULTS	FOR CON	BINATION 4	HISKBER 1					
		Shear Porce						Slope
	m End 1	(kH)			(kH.m)	(100)		(deg)
Jt. 2		-7.194	-7.497		41.457	48.9		
0.75%	5.400		-7.497		15.155	39.2		
0.50L	3.600				10.103			
0.25L	1.800	2.806	-7.497		5.052			
Jt. l	0.000	2.806	-7.497		0.000	0.0	0.0	89.562
Maximum	+ve Ber	nding Moment nding Moment	53.686 kt	l.m at	5.50	m from	joint 1	
Maximum	-ve Ber	nding Moment	0.000 k)	38 m.l	0.00	m from	joint 1	
RESULTS	FOR COP	ABIHATION 4	MEMBER 2					
	ion (m)		Axial Comp.		Homent	dx		Slope
	End 1		(kH)		(kW.m)	(==)		(deg
Jt. 3	10.510	-7.799	6.866		-40.504	48.8		
0.75L	7.882	-7.799	6.866		-20.014	48.7		2.48
0.50L	5.255		6.866		0.477			
0.25L	2.627		6.866		20.967			
Jt. 2		-7.799			41.457	48.9		2.21
Maximum	tve Ber	nding Moment nding Moment	41.457 ki -40.504 ki	i.m at	0.00	Om from	joint 2	
~~~~		ANTHATION 4						
	ion (=)		Axial Comp.		. Moment	dx		
	m End 1		(kill)		(kH.m)	(mm.)		
	4.400		7.497		40.504	48.8		
0.75L	3.300		7.497		32.591	43.8		
0.50L	2.200	7.194	7.497		24.678	37.8		
0.25L	1.100	7.194	7.497		16.765	30.9		
Jt. 4	0.000	7.194	7.497		8.852	23.4	0.0	89.60

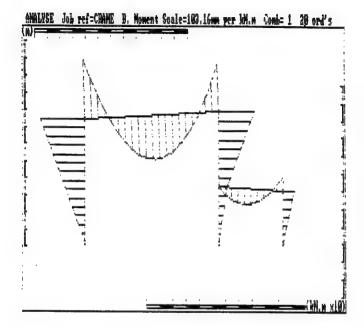
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ESULTS FOR COS	ESINATION 4					
Position (m)	Shear Force		Bend . Noment	dx	dy (mm)	Slope (deg)
from End 1	(lest)	(100)	(kH·m) 8.852	23.4	0.0	89.602
t. 4 3.250	2.724	4.592	6,639	17.7	0.0	89.592
7.75L 2.430	2.724	4.592	4.426	11.9	0.0	89.585
.50L 1.625	2.724	4.592	2.213	6.6	0.0	89.581
.25L 0.813	2.724	4.592	0.000	0.0	0.0	89.579
t. 5 0.000	2.724	4.394	0.000	3.4	0.0	
laximum +ve Ber	nding Homest	0.052 kH	.m at 3,250	e from	ioint 5	
Maximum -ve Ber		9.000 kH		a from		
ESULTS FOR CO	MBINATION 4	5				
Position (m)	Shear Force	Axial Comp.	Bend . Homent	du	dy	Slope
from End 1	(141)	(3:0)	(kH-m)	(==)	(100)	(deg)
rt. 6 5.006	-2.678	4.609	-13.409	23.4	0.0	
0.75L 3.755	-2.678	4.609	-10.057	23.6	4.5	
	-2.678	4,609	-6.705	23.3	5.1	-2.823
0.50L 2.503		4.607				
		4.609	-3.352	23.6	3.2	
0.25L 1.252	-2.678					-2.735 -2.705
0.25L 1.252 Jt. 4 0.000	-2.678 -2.678	4.609	-3.352 0.000	23.6 23.4	3.2 0.0	
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber	-2.678 -2.678 nding Moment	4.609 4.609 8.000 km	-3.352 0.000 f.m at 0.000	23.6 23.4 m. from	3.2 0.0 joint 4	
).25L 1.252 7t. 4 0.000 (aximum +ve Ber (aximum -ve Ber	-2.678 -2.678 nding Moment	4.609	-3.352 0.000 f.m at 0.000	23.6 23.4	3.2 0.0 joint 4	
0.25L 1.252 Jt. 4 0.000 Garinum +ve Ber Garinum -ve Ber	-2.678 -2.678 nding Moment nding Moment	4.609 4.609 8.000 km	-3.352 0.000 f.m at 0.000	23.6 23.4 m. from	3.2 0.0 joint 4	
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber Maximum -ve Ber RESULTS FOR CO	-2.678 -2.678 nding Moment nding Moment MBINATION 4	4.609 4.609 6.000 ks -13.409 ks	-3.352 0.000 f.m at 0.000	23.6 23.4 m. from	3.2 0.0 joint 4 joint 4	-2.705
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber Maximum -ve Ber	-2.678 -2.678 nding Moment nding Moment MBINATION 4	4.609 4.609 8.000 ks	-3.352 0.000 f.m at 0.000 f.m at 5.006	23.6 23.4 m from	3.2 0.0 joint 4 joint 4 dy	-2.705
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber Maximum -ve Ber RESULTS FOR CO	-2.678 -2.678 nding Moment nding Moment MBINATION 4 Shear Force (kH)	4.609 4.609 8.000 ks 13.409 ks 13.409 ks 13.409 ks 13.409 ks	-3.352 0.000 f.m at 0.000 f.m at 5.006 Bend.Howent	23.6 23.4 m. from from dx (==) 23.4	3.2 0.0 joint 4 joint 4 dy (mm) 0.0	-2.705 Slope (deg) 89.685
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber Maximum -ve Ber RESULTS FOR COO Position (m) from End 1	-2.678 -2.678 nding Moment nding Moment MBINATION 4 Shear Force (kH) 4.478	4.609 4.609 8.000 ks -13.409 ks ammal Comp. (ks) 2.905	-3.352 0.000 f.m at 0.000 i.m at 5.006 Bend.Homent (kM.m) 13.409	23.6 23.4 m. from from dz (=) 23.4 18.7	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0	-2.705 Slope (deg) 89.685 89.599
0.25L 1.252 Jt. 4 0.000 Maximum +ve Ber Maximum -ve Ber Maximum -ve Ber TRESULTS FOR CO Position (m) from End 1 Jt. 6 3.000	-2.678 -2.678 nding Moment nding Moment Shear Force (kH) 4.478 4.478	4.609 4.609 8.000 kg -13.409 kg -2.205 6 Arrial Comp. (kg) 2.905 2.905 2.905	-3.352 0.000 f.m at 0.000 f.m at 5.006 Bend.Homent (kN.m) 13.409 10.057 6.705	23.6 23.4 m. from from dz (mm) 23.4 18.7 13.6	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0 0.0	Slope (deg) 89.685 89.599
0.25L 1.252 1. 4 0.000 1. 4 0.000 1. 4 0.000 1. 4 0.000 1. 5	-2.678 -2.678 nding Moment nding Moment MBINATION 4 Shear Force (kH) 4.478 4.478 4.478	4.609 4.609 8.000 kg -13.409 kg -23.409 kg (kg) 2.905 2.905 2.905 2.905	-3.352 0.000 f.m at 0.000 f.m at 5.006 Mend. Homent. (kM.m) 13.409 10.057 6.705 3.352	23.6 23.4 m. from from dx (mm) 23.4 18.7 13.6 6.7	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0	Slope (deg) 89.685 89.597 89.537
0.28L 1.282 1. 4 0.000 Maximum +ve Ben Maximum -ve Ben Maximum -ve Ben RESULTS FOR COI Position (8) from End 1 pt. 6 3.000 0.75L 2.250 0.75L 2.250	-2.678 -2.678 nding Moment nding Homent MBINATION 4 Shear Force (kil) 4.478 4.478 4.478	4.609 4.609 8.000 kg -13.409 kg -23.409 kg (kg) 2.905 2.905 2.905 2.905	-3.352 0.000 f.m at 0.000 f.m at 5.006 Bend.Homent (kN.m) 13.409 10.057 6.705	23.6 23.4 m. from from dz (mm) 23.4 18.7 13.6	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0	Slope (deg) 89.685 89.599
0.25L 1.252 t. 4 0.000 ttaximum +ve Ber taximum -ve Ber taximu	-2.678 -2.678 nding Moment ming Moment MBINATION 4 Shear Force (kH) 4.478 4.478 4.478 4.478	4.609 4.609 4.609 4.609 4.609 4.609 4.609 4.609 4.601 2.905 2.905 2.905 2.905	-3.352 0.000 f.m at 0.000 f.m at 5.006 mat 5.006 M.m.) 13.409 10.057 6.705 3.352 0.000	23.6 23.4 m. from from (m) 23.4 18.7 13.0 6.7	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 89.685 89.597 89.537
0.25L 1.252 1. 4 0.000 1. 4 0.000 1. 4 0.000 1. 4 0.000 1. 5	-2.678 -2.678 nding Moment nding Homent MBINATION 4 Shear Force (laf) 4.479 4.479 4.479 anding Homent	4.609 4.609 4.609 4.609 4.609 4.609 4.609 4.609 4.601 2.905 2.905 2.905 2.905	-3.352 0.000 f.m at 0.000 f.m at 5.006 Bend Moment (kM.m) 13.409 10.057 6.705 3.152 0.000	23.6 23.4 m. from from dx (mm) 23.4 18.7 13.6 6.7	3.2 0.0 joint 4 joint 4 dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 89.685 89.597 89.537

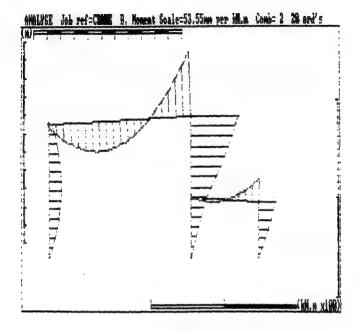
from	End 1	(700)	(3cH)	( lcM .m )	(1000)	(==)	(døg)
Jt. 2	7.200	-5.425	7.584	-39.059	-47.4	0.0	90.229
0.75L	5-400	-5-425	7.584	~29.294	-38.6	0.0	90.325
0.50L	3.600	-5.41.5	7.584	~19.529	-27.2	0.0	98.396
0.25L	1.800	-5.425	7.584	-9.765	-14.0	0.0	90.437
Jt. 1	0.000	-5.425	7.584	0.000	0.0	0.0	90.451
Marinum	+ve Bending	Moment	0.000 kW.m	at 0.000	a from	inint 1	
	-ve Bending		-39.059 km.m		m from		

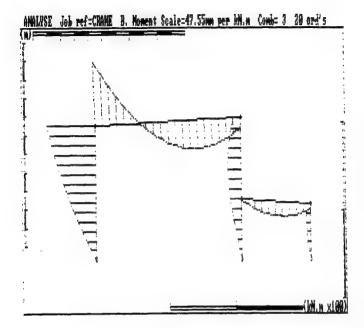
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SECTION AND ADDRESS.	106 COR	E MOSTANIA	idbára 1				
	ion (m)		Axial Comp.			dy	Slope
	a End 1	(k#)	(kill) 5.745 5.746	(kH-m)		(mm.)	(deg)
	10.510	7.345	5.745	38.132		0.0	
.75L	7.882	7-345		18.034 -0.463		-3.5	2.42
.50L	5.255	7.345 7.345	3.745 5.745	-0.463 -19.761			2.43
		7.345					
. 2	0.000	7.343	3.743	-39.039	-47.4	4.0	2.00
		ding Moment ding Moment		.m at 10.510	Om from	oist 2 joist 2	
Posit	ion (m)	Shear Force	Axial Comp.	Bend. Homent	dat	dy	
	m End 1	(k#)	(10)	·(ldf.m)		(==)	(deg
	4.400					0.0	
75L							90.28
.50L	2.200 1.100	-4.575		-11.317			
		-4.575					90.37
Jt. 4	0.000	-4.575	-7.584	-1.251	-22.0	0.0	90.38
lexione Rexions	+ve Bez -ve Bez	ding Homent	0.000 ks -49.795 ks	I.m at 0.08	Om from Om from	joint 4 joint 4	
		BINATION 5					
	ion (m)	Shear Force	Axial Comp.	Bend. Homent	dx	dy	Slop
POBIL	m End 1		(icii)	(kii.m)			(day
fra		-0.385	-4.860		-22.0	0.0	
Jt. 4	3.250					0.0	90.38
	2.438	-0.385					
fro Jt. 4 D.75L D. <b>56L</b>	2.438 1.625	-0.385	-4.660	-0.626	-11.0		99.30
fro Jt. 4 D.75L	2.438 4.625 0.813	-0.385		-0.626 -0.313			

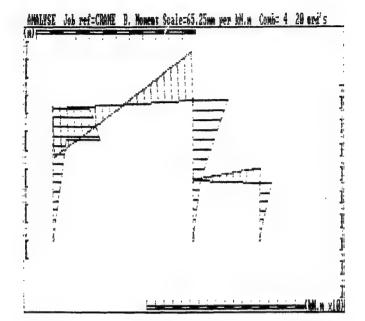
Meximum +ve Bending H Maximum -ve Bending H		kH.m at 0.000m kH.m at 3.250m	from joint 5	
RESULTS FOR COMBINATI	ON 5 MENBER 5			
Position (m) Shear from End 1	Porce Axial Comp	(k#.m)	dx dy (===) (===)	(deg)
Jt. 6 5.006 0.75L 3.755	2.511 -4.3 2.511 -4.3	21 9.428	-21.9 0.0 -22.2 -4.2 -22.2 -4.8	
0.50L 2.503 0.25L 1.252 Jt. 4 0.000	2.511 -4.3 2.511 -4.3 2.511 -4.3	21 3.143	-22.1 -3.0 -22.0 0.0	-2.982
Maximum +ve Bending H Haximum -ve Bending H	oment 12.571		from joint 4	

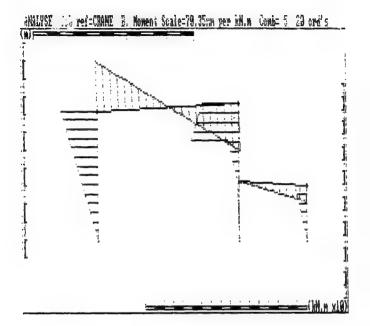
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*	*	* DATE:
•	*ANALYSIS RESUL	T S *SHEET: 15
	nter and Design Services Limit	ed 1985
Position (m) Shear Force	Axial Comp. Bend. Noment	dx dy Slope
from End 1 (kH)	(leff) (leff-m)	mm) (mm) (deg)
Jt. 6 3.000 -4.190	-2.724 -12.571 -2	1.9 0.0 90.295
0.751 2.250 -4.190	-2.724 -9.428 -1	7.5 0.0 90.376
0.50L 1.500 -4.190	-2.724 -6.285 -1	2.2 0.0 90.434
0.251 0.750 -4.190	-2.724 -3.143 -	6.2 0.0 90.469
Jt. 7 0.000 -4.190	-2.724 0.000	0.0 0.0 90.481
Maximum +ve Bending Moment	0.000 kH.m at. 0.000m i	from joint 7
Maximum -ve Bending Moment	-12.571 kH.m at: 3.000m i	from joint 7











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